THE

NAUTICAL MAGAZINE.

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AND

Naval Chronicle.

FOR 1857.

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ON SUBJECTS CONNECTED WITH

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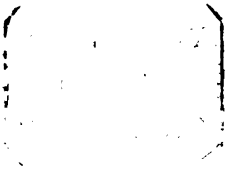

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THE

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Naval Chronicle.

JANUARY, 1857.

Extracts from the Journal of Capt. M. S. Nolloth, H.M.S. "Frolic."—*St. Augustine Bay, Quillimane, &c.*

While at anchor in St. Augustine Bay, Madagascar, we watered the ship from the river, and taking care to obtain it at the proper time of tide, found it good. Masters of ships should remember this, as it ought not to be taken until at least half ebb, and as it is necessary to wait for high water to recross the bar, you cannot obtain more than one turn in a tide, without rafting over the bar, or working by night, which, from the very marshy nature of the river's bank, and the continual presence of fever, is by no means advisable. We obtained well-fed bullocks, sweet potatoes, and barked firewood at reasonable prices; and we ascertained that steam-vessels stationed in the Mozambique might secure supplies of fuel with little difficulty at all times here, consisting of wood ready barked and cut to any required lengths, provided that the demand be frequent.

There is decidedly more space here for anchoring in moderate depths than appears in Owen's small plan, where soundings showing t[illegible] depth are very few. The depth increases very gradually from 12 fathoms, where it is marked on the plan as the anchorage, to 21 fathoms at 0·6 mile from it, N. 40° E. (compass) and 1·1 mile from the Tent Rock, bearing S. 4° E. From thence to the rock the soundings shoaled gradually to 9 fathoms, which we found where it is marked. Perhaps in the N.E. monsoon, when the North-Westerly winds are sometimes heavy and send in a considerable sea, it would be prefer-

able to anchor with the Tent Rock about S. 4° E. (compass). This berth is further from the reef which skirts the South shore, and is in other respects equally convenient.

So secure is the shelter in this bay that the only accident now remembered here for several years, was the parting of a vessel's chain in the N.E. monsoon during a strong wind after a heavy rain. when, especially in January and February, the freshes from the river are sometimes very violent and dangerous as being opposed by the wind, they produce a short chopping sea. The holding ground is excellent, being soft black mud, into which the lead sinks to a considerable depth.

Tent Rock is a white tent-shaped rock on the beach, about twenty feet high: it is not easily made out from a vessel entering the bay; but its exact position may at once be ascertained by remembering that it stands just where the South sandy beach joins the cliffs which continue Northward to the river's mouth, and of which cliffs the rock itself is a detached mass. Near the rock generally runs a small stream of water, which is good at proper times of tide.

Coasters generally take the passage inside Nos Vey Island, and run along the reef on the South side of the bay, especially with the land wind, as they thereby avoid having to haul or work up to the anchorage, with perhaps a current setting out of the river.

At this time (1855) there are two Europeans living in the neighbourhood of the bay, from whom supplies can be more conveniently obtained than from the natives. The chief native, known as the "Prince of Wales," whose authority is acknowledged to a considerable distance around generally receives a small present from the whalers who frequent the bay, and he and his *followers* pay a visit to men-of-war in expectation of a similar acknowledgment. It is cnstomary among the natives to carry assegais, and a few of them trumpery muskets, thickly studded with large headed brass nails, (which should not be allowed to be brought on board of merchant ships,) but this may arise from the neighbourhood being awakened from its usual quiet condition by a difference of opinion between the King of the province of Fierreng and the Chief of Mahaffalla.

From all accounts it would appear that the warfare between the petty chiefs of this part of Madagascar is seldom destructive of life. The natives are scarcely ever arrayed against each other in battle, and their wars seem to consist chiefly in a temporary suspension of that good fellowship by which each chief usually restrains his own people from committing depredations on others. In war-time armed parties rove about, stealing men, cattle, &c., from the opposite party; but actual conflict of numbers seldom takes place.

A considerable area of the land on the river side of St. Augustine Bay, is below the usual high water level, and is occasionally flooded. Fever is said to be always present, and leprosy and smallpox are very common here, for which evils no other remedy is ever attempted by the natives than the charms of the native doctors.

Capt. Boteler gives an amusing account of a celebrated native, Tom

Bravah, which will convey an idea of the character of these people generally. He says

"As soon as daylight appeared, we observed several dark spots opening to the view through the thick fog that hung about the mouth of the River Oneghaloghe, and the lofty white cliffs that limit the South side of the bay. They quickly approached, and were soon made out to be canoes, striving which should first reach the brig.

* * * * *

"The headmost canoe, when they got tolerably near us, waited until the next came up before they would venture further. One then approached and questioned us through the medium of their interpreter, an old blind man, who, holding his head down, as if conning a written speech, delivered his harangue with stentorian power, wonderful volubility, and endless repetition:—What ship dat?—Me speaky you Cappen for King Bahbah.—Greaty King, all de same King Zhorje (George).—Franshee ship? Englese ship?—You friendee me, me friendee you.—You tradee (trade with) me, me tradee you.—You presentee (make a present to) me, me presentee you.—Me no little boy, me grandee man, soulyer (soldier) for King Bahbah.—Having thus spoken, and pretty well exhausted his breath in his ten minutes vociferating reperition of it, Tom Bravah, who was in the canoe, broke in upon the blind man's story, and thus introduced himself:—'Me Tom Bravah:—you sabbee Tom Bravah:—Tom Bravah speakee you Cappen.—Tom Bravah no little boy, no fisherman; gobernor (chief) for King Bravah.'—In this way he ran on for some time, and at last concluded with—'Speakum Tom Bravah—come he come.' He was welcomed accordingly, and, accompanied by the blind man, soon made his appearance on deck.

"His costume, which was that of the country, principally consisted in a large white garment of native manufacture, ornamented with three black streaks near the edges, and one across the middle: it was secured round his waist, a small part hanging down before, and forming a sort of kilt, while the rest was negligently thrown across the shoulders. This garment had in all cases a pleasing effect, but on some it really appeared elegant from the careful and becoming way in which the folds were arranged; it tended to prove that dandyism is as common among the rudest tribes of savages as it is in the most polished circles of civilized life.

"But to return to Tom Bravah. Round his neck was suspended a string of beads and drops of cut glass of various sizes and colours. Some of the smaller of the former were used to decorate a piece of wood, shaped like the float of an angling line, about two inches and a half long. On his wrists he had bangles of silver; and his long black hair was plaited into small tails, three or four inches in length, with a knot at the end. These were trimmed so as not to hang below an imaginary line that might pass just above the eyebrows and across the ear. About half way from one in the centre of his forehead, a circular piece of ivory was suspended, an inch and a half in diameter and neatly turned.

"On ascending the deck he took his blind comrade by the hand, and pushed his way to Capt. Vidal, to whom the pair repeated all that they had before said, and with as loud a voice, especially when they perceived that they were not understood. But the clamour that they made was trifling compared with the turmoil that ensued when the rest of their countrymen got on board. They had too much assurance to pay attention to broad hints, or even to the plain declaration that their noise was disagreeable: nothing less than turning them out of the vessel had any effect, a measure to which we were driven in three or four instances.

"Our visitors had scarcely been five minutes on board before they became very troublesome for presents. King Bahbah, in whose name the greatest demand was always made, was to have one barrel of gunpowder and one of brandy, two muskets, two hundred flints, and the same number of ball cartridges. A tone of request was by no means adopted: on the contrary, the present was demanded as a right, not as a voluntary donation. Such domineering conduct in all probability owed its origin to the intercourse of the natives with merchant vessels, which some years ago were more in the habit of visiting the bay than at present. Being weakly manned, it was to their interest to conciliate the goodwill of the natives by presents, that they might obtain assistance in wooding and watering. This no doubt was previously considered, and cheap articles for the purpose were accordingly provided.

"The natives who were admitted on board amounted to thirty. They brought with them sheep of a small breed, goats, guinea fowls, and common ones, macaucoes, or, as they are sometimes termed, Madagascar cats, water melons, lemons, bananas, plantains, sugar-canes, honey, pompions, milk, and various sorts of shells, all which they greedily bartered for dollars, beads, blue dungaree, (which they call clout,) looking-glasses, bottles, more especially case-bottles, brass, &c. They understood well how to drive a bargain, yet our goods were in such request that even allowing that the natives obtained their utmost demand, the purchaser had no reason to complain; for with a dozen small common earthenware beads he could procure sufficient refreshments to last him for the day, and his mess for a week by the proceeds of a small dog-bell, purchased in London for fourpence." We saw nothing however of Tom Bravah or his friends, who have most probably passed away.

Tullia Bay, about twelve miles Northward of St. Augustine, is occasionally visited by coasting vessels to be laid on the mud opposite the village for slight repairs, the water inside the reef being very smooth. The usual anchorage is abreast of this village, in about 6 fathoms. Near a small nook at the South extreme of the bay, a spring of fresh water is found, issuing from rocks, which is said to be highly esteemed along the coast,—this spot is called "Saoudranou," or "good water."

Having completed watering the ship, we left St. Augustine Bay on the 29th of September, and made sail for Quillimane. We experienced little or no current during our passage of four days until we approached the African coast, when we found a westerly set of about

one mile an hour: we anchored in the latitude of the river's mouth, in 9½ fathoms, without being able to distinguish anything but a rugged outline of trees above the horizon. On the following morning we tripped our anchor, stood into 5 fathoms, and made out the flag-staff on Tangalone Point, and to the Westward a break in the line of trees indicating the river's mouth. At 8h. a.m. I left the ship, and passing over the bar in tolerably smooth water, arrived at Quillimane at noon.*

The Governor was absent in the interior, at Tette, and had been there since June, and the object of my visit was explained to the Commandant, being simply the case of Dr. Livingston. I took care, on presenting him with my letters, to impress on him the feeling of anxiety that prevailed in Europe for the safety of this enterprising gentleman, and our desire to see him at Quillimane. The Commandant was of opinion that he must pass through Tette on his way to Quillimane, and assured me that no pains would be spared by the Governor, or by any Government officer, to promote the health and comfort of so distinguished a traveller, should he happily make his appearance in their

* [The visit of the *Frolic* to Quillimane was made in October, when nothing being known of Dr. Livingston (who has now reached England and been received with becoming honour by the Geographical Society), the *Dart* went there in April following on the same mission. In consequence of the sad misfortune which occurred to her, she was obliged to leave without effecting the object of her visit, and on her return to the Cape the Commodore sent the *Frolic* there, which ship was then under another commander, Capt. Nolloth having left her in consequence of being promoted. The misfortune, which was related as follows in a Cape paper, seems to have been one reason of the delay which occurred to Dr. Livingston at Quillimane.—ED.]

HER MAJESTY'S BRIGANTINE "DART."—FATAL ACCIDENT.—*Cape of Good Hope, May 30th.*—On the morning of Tuesday, April 29th, H.M. brigantine *Dart*, being at anchor off the Quillimane River, about eight miles from the shore, the cutter, with Mr. M'Clune, second master, commanding, Lieut. Woodroff, R.M., nine men, and a black boy belonging to Quillimane, left the ship to proceed up the river. On Saturday morning, as the cutter had not returned, the gig was sent in search of her; shortly after which a Portuguese boat arrived alongside the *Dart*, with one of the cutter's crew, from whom were obtained the following particulars:—On Tuesday morning the cutter, on nearing the bar of the river, was nearly swamped by a heavy sea, and the next one turned her over. One of the men, named M'Nabb, immediately disappeared; two others swam ashore, and the rest clung to the boat till all but the narrator and two others gradually lost their hold and were drowned. These three drifted with the boat about twenty miles to the N.E., and on Wednesday morning found themselves so near the land that he himself swam ashore; the two others held on by the boat until she grounded. As soon as the information reached the *Dart*, the gig, which had returned, was again sent, under the charge of the gunner, to Quillimane, and on Saturday evening she came back with four of the survivors, who stated that, after the upsetting of the boat, Mr. M'Clune, who wore heavy blanket clothing, was one of the first who sank; Lieut. Woodruff held on longer, but at length, overcome by exhaustion, he also disappeared. The three men who had remained by the boat stated that they had reached Quillimane about an hour before the boat from the *Dart* arrived.—*Hants Adv.* 2nd Aug. 1856.

territory. But he gave me little hope of his passing safely through so hazardous an enterprise, taking into consideration merely one inhospitable portion of Eastern Africa adjoining the Quillimane district, which he would have to traverse. On referring to a statement regarding the arrival at Benguela of a small band of Arabs in 1852, from Zanzibar, he observed, that these men had reached Mozambique safely, where their journey had excited much sensation; and before we parted he placed in my hands the *Mozambique Government Gazette*, of which the following is a translation.

Translation of the Mozambique Government Gazette of March 17th 1855.—Commercial.

The difficulties which for a long time have been held to be insuperable with reference to a passage across the Deserts which separate the Eastern and Western parts of Africa, have just now been a second time overcome by some Moors, who, leaving the coast of Zanzibar, to trade in the interior, found themselves, after some month's journey, near the western part of Cazembe; and in the expectation of a more favourable commerce, still advanced, until, having no more goods to trade with, they directed their course to Catambe, where they were informed they would be able to get some in exchange for gold and ivory, which they still possessed. At Catambe they fell in with a merchant of Benguela, and advised by him to accompany him, they arrived together at that city, after a journey of some months, without having to give any information unfavourable to commerce, but the contrary.

They journeyed through Balamoio, Terras de Girvasa, do Cuto, Legoxa, Coyo, Toagana, Morungo, Cazembe, Calanga, Cahava, Macacoma, Cobito, Banda, Quanza, Bille, and Benguela. Some of these countries are thickly populated, and they have abundance of provisions and of ivory. Between Cahava and Cavica runs the River Leambeje, which one may suppose to be Zambege, and disembogues at Quillimane.

Returning for this coast they diverged from their former route; and the principal countries and peoples of which they gave notice, are the following:—Chamopa, Mastangora, Camimbe, Macurgo, Passatubalumba, Pachahoca, Caiomba, Panamba, Utumbuca, Bamba-Culima, Nhaca-pumunabambi, Nhaca-pacofumera, Jana-pamudicula, Jana-pamugambo. In all these there is abundance of food, good water, and plenty of cattle. They crossed some rivers, the principal one being the Wumcarque, which is more than a hundred fathoms broad and of great depth, and to cross which they had to make a raft.

They left Benguela the 7th of June, 1853, and arrived in this city the 12th of November, 1854.

On my inquiring into the effect of relaxing the law relative to the admission of foreign traders to the Portuguese colonial ports, I was informed by the Commandant that for more than thirty years scarcely any English, American, or French vessels have been seen at Quilli-

mane; but that foreigners would be well received when they came. However this might be, there would seem to be little inducement for them to do so, for it would be difficult to imagine a more wretched looking place or a more miserable population. They were slowly recovering at the time of my visit from the loss of their crops from the heavy rains of the previous January, that had swollen the river and flooded a large portion of country. So great was the flood, that many persons only saved themselves by taking refuge in the trees, numbers of whom had since died of starvation.

A lighthouse had been nearly completed on Tangalone Point, and the light was scarcely in operation, when the foundation, which was of sand, without piles, gave way to the flood. This of course was fatal to the structure; and at present there seems to be no intention of rebuilding it. A flag-staff marks the ruin, which, being but a heap of rubbish, is scarcely to be distinguished from the surrounding trees, and is, therefore, of very little service as a seamark for vessels entering the river.

We saw nothing here indicating commercial activity of any kind. A considerable number of large canoes and some boats were lying about idly by the river side, all apparently in a more or less neglected condition and out of use; and only one small coasting vessel lay at anchor in the river, about to sail for Mozambique with ivory. From the fact of the vicinity of an English vessel of war being unknown at the town until we had landed, may perhaps be inferred the great decay of Quillimane, as the chief slave mart of the Portuguese. A signal staff was erected some years ago on the North extreme of Pequena Island, as an intermediate station between the town and Tangalone Point Flag-staff; but no one is now stationed there: the staff on the point exchanged colours with the brig, but we did not observe any signals.

In respect of trade, Tette, in the neighbourhood of which place a war has been going on for more than three years between the Portuguese and two native tribes, is the channel through which the produce of the interior passes to Quillimane, and this war seems to have greatly ccoperated, with the extinction of the slave trade, towards the decline of Quillimane. Trade with the natives is almost at an end: indeed an occasional freight of ivory and tortoiseshell is all that can be obtained for one or two small coasters from Mozambique, and the gold dust, which was formerly washed from the sands and taken by the natives to Tette, is no longer to be had. This war, it appears, had detained the Governor at Tette since June last. The Portuguese troops amount to between 1200 and 1400, of whom about 80 are stated to be the remnant of 180 Europeans who a short time since were conveyed from Lisbon to Mozambique in the *Don Fernando* frigate, which vessel brought out for the service of the settlements 200 regular troops and 150 convicts to serve as soldiers. Such are the materials of which so small a portion of the Portuguese troops are formed, the remainder being mostly slaves. It would appear to be a

war carried on with great acrimony, for it is stated that the natives have impaled or cut the throats of many of their prisoners.

It would be difficult to obtain a good estimate of the whole population of the Quillimane district, for no regular census seems ever to have been taken; but the population of it is estimated at 8,000, of whom 17 only are Portuguese, and of these but five reside in the town. The town itself wears the aspect of desolation, for the few stone and brick buildings in it are in a sadly dilapidated condition, and the huts of the negroes are small mat coverings, indiscriminately scattered in the jungle. The church appeared to be the only edifice in repair: a half-caste Padre of Goa performs mass on Sundays to the Portuguese, who alone attend.

The only employment that seemed to be going on, was that of brick-making by some heavily chained convicts, who were runaway slaves and others, including men, women, and children. Fever is reported to be ever present at Quillimane, and smallpox appears to be very common. A Government medical man occasionally inoculates European children with its virus on favourable opportunities; I much regretted that the medical resources of H.M. ship did not enable me to supply him with vaccine matter; vaccination never having been adopted.

Notes on Quillimane River.

The bar of Quillimane River is very frequently dangerous and treacherous, many accidents having occurred when little expected, including several to the boats of our own ships, and the loss some time ago of a pilot and his crew.*

The most convenient anchorage off the mouth, is generally in 11 or 12 fathoms, with the Flag-staff on Tangalone Point bearing N.N.W. (compass), distant about eleven miles. With Southerly and South-Westerly winds it is sometimes preferable to anchor in about 8 fathoms between the Indian and Quillimane rivers, with the Flag-staff about North, this being more to windward for the boat, and a smoother berth for the ship, as these winds meeting the ebb out of the river frequently cause a heavy swell, to which a vessel anchored off the mouth then rides broadside on rolling heavily.

The best time of tide for boats entering, is the last quarter flood; the best for quitting, the first quarter ebb, as the nearer high water the fewer the breakers, and the general idea among some naval visitors that half tide is the most favourable, as the breaks on each side then mark out the channel, is, in my humble opinion, most fallacious.* When other circumstances permit, the early morning is the best time for entering and quitting the river, as calms or light winds off the land, with a smooth bar, are then the most frequent. The boat-bar is almost always the safest, and, whenever it is prudent for a stranger to

* Since this was written the officer commanding H.M.S. *Dart* and most of his boat's crew perished on the ship-passage of this bar at *near low water*, see p. 5.—ED.

enter the river should be taken. With a strong South-Westerly wind this passage is sometimes impracticable, when the ship passage can be taken, by those acquainted with it.

At our first visit in the whaler and cutter, we took the ship passage, and had tolerably smooth water. When returning in the morning, also in fine weather, a slight sea-breeze had already set in, and toppling waves which (as far as we could see) threatened to break into the boat, suggested the greater safety, in one respect, of the western or boat channel, which, running for the greater distance near the shore, would afford some chance of escape in the event of accident. At our second visit, in the pinnace and cutter, (the ordinary brig's whale boat having been considered unsafe,) we took the boat passage in going in and returning. In going in it was nearly high water, with a light southerly wind, and the channel was distinctly visible and sufficiently smooth. On returning in the same weather near low water, the breakers were very heavy, and the pinnace having missed the channel, had to return and anchor within Tangalone Point until the following morning, when at near high water she left by the boat channel, which was then quite smooth.

When an early start from the river to the ship is intended, it is advisable to sleep in the boat at Hippopotamus or else at Tangalone Point the night before, taking care, if at the latter, to anchor well inside, Northward of a flat sandy spit, which runs out from abreast the flag-staff, as it dries to a considerable distance out at low water, and frequently, even in fine weather, has a surf on it when the tide rises.

In ascending the river there is no difficulty whatever if the western shore be kept the whole way. To the Southward of Pequena Island we passed a low islet, which does not appear in the chart; and still further Southward, a since-raised bank, which, though not visible on our way up, was, on our return at low water, dry to a considerable extent. At times, when the stream is rapid, it is dangerous to run aground on the soft bottom. We passed the wreck of a small vessel which had grounded in smooth water and had failed to get off.

The winds favourable for small vessels entering the bar of Quillimane River by Tangalone Point, are N.E. round by South to S.W. With a S.W. wind you cannot pass from Tangalone Point to Olind, as is usual at other times, when going up to the town; but you may anchor on the Tangalone side within the two points of the entrance.

The winds for leaving the river from the well, are S.W. round by North to N.E.; the S.W. channel is often taken by coasters well acquainted with the river, and may sometimes be safely taken by others, but only with the winds N.W. round by North to East.

For vessels entering the river the Tangalone Passage is the only practicable one, the channel mark being the Tangalone Flag-staff N.N.W. If when on the bank a vessel shoals her water, she should keep more to starboard, viz., to the Northward; and as soon as it begins to deepen, steer N.N.W. for the flag-staff as before. When the water deepens, steer for Tangalone Point, borrowing on the Cavalho. Marinho Bank. As soon as you are inside the flag-staff you should

borrow a little on the North shore, and then anchor for a pilot, as the river has undergone great alterations since Owen's survey.

Vessels of war wishing to communicate with Quillimane, usually anchor in 10 or 12 fathoms, about ten or twelve miles from the river's mouth. It is not perhaps prudent for them, when approaching the shore to drop a boat, to stand in to much less than 7 fathoms, even in fine weather, owing to mounds or ridges of sand which are said to exist off the entrance, and which in moderate weather sometimes cause heavy breaks. The soundings, between 12 and 6 or 7 fathoms, appear very gradual.

The following information may be interesting—especially with reference to Dr. Livingston.

Times occupied by the Voyages between Quillimane and Tette—180 *miles up the river.*

I.—From Quillimane to Tette in the rainy season.

From Quillimane to Mogurrumba, in both rainy and dry seasons, takes three flood tides. From Mogurrumba to Mazoro, embarked in almadias, two days. From Mazoro to Senna, embarked in lanchas, escaleres, coches, or almadias, eight days. From Senna to Tette, embarked in any of the above-mentioned boats, thirty days.

II.—From Quillimane to Tette in the dry season.

From Quillimane to Mogurrumba, as in the rainy season, three flood tides. From Mogurrumba to Mazoro, conveyed in machillas by two Negroes, carrying also a load of baggage of two or three mudas weight, two days by land. From Mazoro to Senna, in any of the before-mentioned boats, four days. From Senna to Tette, in the same boats, ten days.

If great haste be required, or when less weight is carried, this voyage—in the dry season—may be made in about two-thirds of the time stated.

III —From Tette to Quillimane.*

From Tette to Senna, in any of the before-mentioned boats, one day and a half. From Senna to Quillimane, in the same boats, two days and a half.

In the times given for the voyage down the river the nights are not reckoned, as neither with a full nor low river is it customary to travel by night, on account of the dangers in the way.

IV.—From Tette to Quillimane when the river is not very full.

From Tette to Senna, in any of the before-mentioned boats, four days. From Senna to Mazoro, in the same boats, two days. From Mazoro to Mogurrumba (carried, as before, in machillas) two days *by land.* From Mogurrumba to Quillimane, in boats, as before-mentioned, three ebb tides.

In the winter months (January, February, and March) Negro messengers go from Quillimane to Tette by land, crossing the river occasionally, in about twelve days.

According to circumstances, the state of the river at the time, &c., a greater or fewer number of days is required for the above voyages than specified.

The latitude and longitude of Tette were not procurable at Quillimane.

The Rev. Dr. Livingston, alluded to as being expected at Quillimane (Quelamaen perhaps we must now spell it), was conveyed to the

* When the rains are sufficient to open a communication between the rivers Ambeze and Quillimane, which circumstance is of very uncertain occurrence, not taking place sometimes for several years.

Mauritius in H.M.S. *Frolic;* from whence he has returned home by the Red Sea and France. The *Daily News* gives the following interesting particulars of him:—

He is nearly forty years of age; his face is furrowed through hardships, and is much burnt from exposure to a burning sun. He hesitates in speaking, has a peculiar accent, is at a loss sometimes for a word, and the words of his sentences are occasionally inverted. His language is, however, good, and he has an immense fund of most valuable and interesting information, which he communicates most freely. He is in good health and spirits. His left arm, which was broken by a lion, is improperly set—a defect which he will endeavour to get corrected while he is in England. He has an affection of the uvula, which will prevent him from speaking much in public for the present. This affection has been brought on by preaching in the open air in Africa. If he now speaks much he loses his voice, notwithstanding that he submitted to an operation in Africa to enable him to speak in public. He has scarcely spoken the English language for the last sixteen years.

He lived with a tribe of Bechuanas, far in the interior, for eight years, guiding them in the paths of virtue, knowledge, and religion. In conjunction with Mr. Oswald, he discovered the magnificent Lake Ngami in the interior of Africa. He traced by himself the course of the great river Zambesi, in Eastern Africa, and explored one of the extensive and arid deserts of the African continent. In the interior of that continent he reached the lat. of 8° S., that is 26° North of the Cape of Good Hope, far beyond the range of any former traveller. The Lake Ngami is far to the West of the hunting grounds of Gordon Cumming. Livingston was in those grounds when the Lion-slayer was there, and they both met often. Livingston never could make the Africans believe or understand that his countryman came for sport. They thought he came for meat which he could not get at home. The last news that Dr. Livingston heard from Europe while far away from the coast was when he was near Loando. He then read of the battle of Balaclava. It was a twelvemonth before he heard further news.

The wife of the Doctor is the daughter of Mr. Moffatt, the civiliser of the Bechuana nation. Moffatt had lost sight of his son-in-law for some time, and attempted to penetrate into the interior to see what was become of him. He failed to reach him, however, but he sent on by friendly tribes a package of books, newspapers, and letters. This package was brought to the southern bank of a river which separated two hostile tribes. Livingston was then living far to the North of this river. The Southrons called to the Northmen, and told them that they had some property belonging to the Doctor, who was held in great respect by both tribes. The Northmen refused to cross over for it, saying that the books and papers contained witchcraft-medicine. "Very well," said the Southrons, "we leave them here, and if they are lost, on your heads the blame will fall." They then retired. The Northmen thought better of it, crossed over, placed the parcel on an island in the river, and built a hut over it. Twelve months afterwards, Dr. Livingston found the parcel there safe.

The Doctor has been struck down by African fever upwards of thirty times. He has constantly slept in the open air in the most unwholesome climates, and he has travelled over "sands and shores and desert wildernesses," with no earthly defence, he says, save his own right arm, but under the protection of the Almighty. It is impossible to talk with the Doctor without discovering that he has a brave heart, and possesses quiet and enduring energy.

Dr. Livingston explored the country of the true Negro race. He saw a multitude of tribes of Africans, and several races, many of whom had never seen a white man until he visited them. They all had a religion, believed in

an existence after death, worshipped idols, and performed religious ceremonies in groves and woods. They considered themselves superior to white men, who could not speak their language. Lions were numerous and destructive, because many tribes in Africa believed that the souls of their chiefs migrated into the bodies of those animals. These natives clapped their hands together whenever they saw lions, to cheer and honour them.

The Doctor and Mr. Oswald discovered the Lake Ngami by stratagem. The natives South of the lake always directed travellers to it in a straight line, which was at most times through an arid desert, which could not be traversed. Messrs. Oswald and Livingston skirted this desert, and thus reached the lake, which was exactly where the natives pointed to it by a circuitous route. Far North the Doctor found a country abounding in game and oases, though at some parts the game had been thinned by the natives, who had been supplied with fire-arms by the Portuguese.

At the time when Dr. Livingston was supposed to have been lost, owing to the ship which contained his despatches foundering near Madeira, he was then in the interior of the country trying to seek a road to the sea coast. A chief was anxious to open a communication with the coast for the purpose of trading, and the Doctor and a large number of the chief's subjects were seeking the means of doing it. The difficulty consisted in finding a route for vehicles, on account of the marshy state of the country.

He describes the language of the Bechuanas, amongst whom he lived, as remarkably sweet and expressive. It has none of the clicking sound which distinguishes the Bosjeman language. The whole of the dialects of the African tribes have affinities one with another, a circumstance which assists a traveller who understands one dialect to make himself intelligible in another.

The Doctor left the interior of Africa by descending the river Quelamaen, which empties itself in the Mozambique Channel. It was in an attempt to find him that several of the crew of H.M.B. *Dart* were drowned. He hopes next year to enter Africa again from the East, and proceed to extend his discoveries. Although so long away from the abodes of civilised men, he has not lost the manners and polish of a gentleman.

(To be continued.)

A Trip from Port Clarence to King-a-ghee,—*By Commander Henry Trollope, H.M.S. Rattlesnake, January*, 1854.

(Concluded from vol. xxv, p. 647.)

We were treated with equal civility in the lower village, although their neighbours did give them a bad character. I thought to myself, on their assuring us they did not steal, whether they were equally observant of the next commandment.

The more we saw of the people the more we admired their clothing; the furs are excellent, handsome, and even tasteful in ornament. The children, fat, rosy, and happy, are continually wrestling with each other.

Towards evening we were on the ice to witness the arrival of the sledges with the seal that had been caught. They are quite different to the draught sledges. It was quite animating to see them coming,

each with four dogs, at the rate of six or seven miles an hour. These sledges are called driving sledges, are very small, will only hold one person, and carry hardly any luggage. In fact it would be difficult to place anything except what a man actually has on in them, but they are well adapted for speed; between them and the draught sledges there is no comparison—one is a light gig, the other a heavy wagon.

It came on to snow and sleet, and we therefore were glad to take shelter. Our sledge was unpacked and most of its contents sent into the tupuc. Although our things were much exposed and the people crowding around us, we lost nothing. Our hostess was very civil in putting our things away, and, notwithstanding the odour, which at first is intolerable, we were grateful for warmth and shelter. Our things were damp and unpleasant from the continued sleet and snow. This, although not so injurious as if we had had woollen clothes, is still sufficiently disagreeable. Our mocassins also were thoroughly saturated and sadly wanted repair, so that it was really with no slight thankfulness that we found ourselves safely housed.

They certainly have the secret of keeping their houses warm, and this even without doors, by means of a long, low, narrow passage, looking from above more like a rabbit warren than a place for human beings. A hole in the roof is covered with a piece of transparent gut of the walrus, admitting a very tolerable degree of light. A screen of the same sort hangs before the inner entrance of the apartment. The passage is always below the inhabited part, and the aperture communicating with it is not a bit bigger than is absolutely necessary—in fact, encumbered with clothes, one has to squeeze and turn to get in at all. This is the secret of the warmth of their tupucs, the entrance is so small and there is only one, so that there is no thorough draught, and they are besides buried in snow. The continual burning of the lamps keeps up a warmth that to us was most grateful, although, at the same time, the stink was most abominable.

We took our wet skin dresses off and hung them up to dry. Most of our traps were left in the outer passage, but they made no objection to our taking anything into the tupuc itself or household apartment. The man was still absent, but the woman gave us every welcome, and set to work to mend our necessaries, the walrus hide soles of which had been worn out; even a woollen sock was mended with a piece of fawn skin, which Edward Hill, to whom it belonged, said he should preserve as a curiosity.

About an hour after sunset the men came in. We found that we were in the house of two brothers, Ar-nark-look and Emown; each of whom had two wives and two children, one by each wife. The passage was common to both, and so was the cooking-house, a miserable dirty hole six or seven feet long and three or four broad, with a hole in the roof for the smoke. But on the right hand of the passage another branched off, leading to Emown's apartment, which appeared in all respects perfectly distinct from his brother's.

Ar-nark-look, on hearing who we were, welcomed us with great civility, indeed with a good deal of natural politeness. They had been

very successful in catching seal, bringing in three. The woman went out and thanked them most cordially it seemed. They pulled off their wet things and sat down on the floor with nothing whatever on but their breeches, a pretty good proof how warm and comfortable the place must have been, the thermometer outside being —20° (52° below the freezing point).

The woman soon brought the dinner in hot and hot at intervals of twenty minutes. It consisted of large pieces of seal stewing in rich gravy, and looked very good. Seven or eight sat down on the floor and began to eat away with great gusto, fingers in the dish, knife at the mouth, with which they sliced away in a manner that, had we tried it, noses and fingers would have been in great danger. The last dish was hot gravy soup, which they helped themselves to in wooden ladles, holding about a saucer-full, apparently as hot as they could well bear it. I tasted it and found it very good, and I particularly dislike anything in the least rank or fishy,—of this I could not perceive the least taint.

After dinner a very animated conversation took place between them, which we, by their motions and a word here and there recognized, were quite able to follow as being a description of the sport they had had, and their success with the seal. It made me think of a sportsman in England describing his being in at the death.

The women attended on the men and had probably eaten before they returned; but a young child who was about three years old was given a piece of blubber, roasted over the lamp, looking exactly like a plum of fried fat pork. He eat away, never taking it away from his mouth, but cutting it occasionally close to his mouth with a short knife. He was fat and chubby, with a belly like a Negro child fed on Capawa. I was astonished to see this child, two or three hours afterwards, suckling with its mother,—they wean them very late. The little animal put down his lump of blubber while at dinner, calling out lustily, "Arkhan, arkhan," (mother, mother), who put a wooden drum-like tub, made of the bark of the birch, towards him, which he placed close to his papa, (at dinner with his seal-hunting friend,) sat down, pulled up his breeches again, and then ran back to his blubber. The utensil in question was as near his father on one side as the dish of seal soup was on the other. The odour was not surprising after seeing this.

We had crowds of visitors—a succession of evening calls—most likely attracted by our being there; but about nine o'clock they all departed and we were left alone with the family. A sort of shelf or dresser extended along one side of the house or room (which was about fourteen feet square, in the centre about nine feet high, but at the eaves not more than five feet). On this we slept. My bed was a fearnought bag, an excellent thing in these travelling excursions as it makes mattress, blankets, and all in one. We had the pleasure of taking our clothes off, which we had not done for the last ten days, and the place, as I said before, was so warm that we did not feel the want of much clothing. As for washing, it was out of the question, I disregarded it altogether, indeed I only took a comb with me.

The people of the house slept on deer skins underneath our dresser. The man went to bed between his two wives, each child with its own mother. I suspect, like our Saxon ancestors, they go to bed naked, at all events, contrary to our custom, they got under the skins with their shirts off but their breeches on. Both men and women wear breeches, but the coats or frocks of the women are differently cut in the skirts.

On the morning of the 19th January we received a very civil message from Ark-roo-ack, one of the chief people in the lower village,—his tupuc was at the extreme end of the spit. We therefore went down to call on him. His tupuc was much the same as the one we were in; but it did not appear to me quite so tidy and comfortable. He had two wives and a host of children or dependents, for these people very often adopt children and bring them up as their own.

The sledges coming in and departing formed a very animating scene. They travel fully six miles an hour, and when they brought in three or four seals behind them the excitement was general. We saw some very fine baidars on stages, some thirty-eight or forty feet long and seven feet broad. It is with these, I imagine, they communicate with the Diomede Islands (that is, Igmaaklikle and Ignalitke), and not over the ice, which appears very uncertain; and, in fact, as far as we could understand them, it requires the combination of very calm and very severe weather ever to render the passage safe. We found several articles of Russian manufacture among them, especially knives, kettles, and mugs—good strong manufacture, but not quite so neatly finished as English goods, not on that account the worse for their use to them. Their dresses, we understood, came from Asia, and, as I said before, they are really handsome and tastefully ornamented.

On returning to Ark-roo-ark's tupuc, I was glad to find that Mr. Henry Gilpin had arrived, with Edward Hill and an additional supply of provisions, about 2h. p.m. The town turned out to see him as they did to see me. He was wet and cold, and his mocassins wanted repair; therefore I determined to wait another day. He was received into Emown's apartment, so that we were both under one roof, although living with distinct families. We were fortunate in pitching upon such a tupuc, for I did not see any we should have liked so well.

The country between King-a-ghee and Schis-marief Inlet is not much inhabited. It is called the Tap-coekte country, and is frequented for hunting and shooting.

We endeavoured by all means in our power to explain to them that our object in wintering here was to succour some of our countrymen who are in want and distress, but I doubt if we made much impression. Their ideas run altogether upon barter or providing for their immediate wants, and all their intercourse with European or American ships has so entirely possessed them with this idea that they thrust it upon us continually. I have been so deceived by reports, and, on inquiry, have found such ignorance of the means of communication, or of affording any explanation, even in simple things, that I have long given up placing reliance in what is told me by people professing to

speak and interpret. The jargon that goes on between us and the natives is sometimes amusing enough, but if anything serious is on the tapis it is not by any means satisfactory.

The people seemed to study and watch us continually, to wonder at us and the things we occasionally produced. They were particularly struck with our reading, surprised that our attention could be so riveted by what, to them, must have seemed so devoid of purpose. Writing also seemed to surprise them.

I was doubly glad to fall in with Mr. Gilpin for, owing to the heavy snow drift on our starting, we had been so delayed that we should have been pressed for provisions. Although unsuccessful in our object, I do not regret having come. King-a-ghee is an advanced post, and if any people communicate with Asia they do, and are therefore more likely to spread the knowledge of our wintering here than any others. They are, besides, an intelligent race and, though uncleanly, are very far removed from being degraded,—in fact, the reverse, they are intelligent and ingenious in a high degree, displayed in their habitations, in their boats, their sledges, and their weapons. I also think they are an amiable people. I never remembered hearing any quarrelling, or harsh words even, between them, although one or two instances of stabbing have been mentioned, which I have reason to believe took place—one arose from jealousy, caused by success in shooting. I think they contrast very favourably with the natives of Vancouver Island.

I have said they are uncleanly, and they certainly are so, but I do not think by any means they are indecent, or even immodest, although their ideas about marriage are loose, in fact they only maintain a connection as long as it is agreeable, but while the connection lasts they are, I believe, faithful. I must state what happened on one night at King-a-ghee. I saw the lady having a wash in one of their wooden bowls or dishes, I said to the person who was with me, it being a rare sight, "By Jove she is having a wash, you had better lend her your soap." "It ain't of no use, Sir," said he, without moving a muscle. "Why not?" I asked. "Soap won't take with that, Sir," said he again. "Why, Good Heavens," said I, "you don't mean to say she is washing in urine!" She is, Sir, I saw it and smelt it too!" "So do I, by Jove," I replied, as an awful whiff came across me at the time. She washed herself with it from the waist upwards, nose, ears, and eyes, then the child was called and went through the process. The fact is they have no patent boilers or kettles, and therefore, as they drink a great deal, they make nature supply the place. I particularly remember it because my handkerchief fell down close to her, and she wiped herself with it and then returned it to me. I was fain to make her a present of it, although it was my only one. No wonder, with this, and with the seal oil lamps, and all the wants of nature being performed in so confined a spot, that the odour is overpowering, —nevertheless, I lived for three days amongst them.

Friday, 20th January, was a very bad day, but we could hardly have started had it been otherwise. We procured a quantity of dogs'

food by barter, a supply of mocassins and "coppetocks," that is, light overall frocks, made of the gut of the walrus, which go outside the fur dresses and in snow-drifts keep the snow from penetrating under the fur,—they are of very essential use.

On the night before we started, after our host's acquaintances had taken leave, I collected all the family in one apartment and began to make the two husbands, the four wives, and the four children a speech, endeavouring to make them understand the object of our being in Port Clarence, of the *Plover's* being at Point Barrow, and that if they relieved any of our countrymen they would be amply rewarded for it by the great chief Victoria. I also left them some tins, with the ship's name stamped upon them, enclosing a paper stating the particulars relating to the ship, and requesting any one to whom they showed it to give them some trifling present. How much of this they comprehended, or if they will ever act upon it, I can hardly say; but the concluding part they at all events understood, for it consisted in making all round—husbands, wives, and children—ample presents. We gave them beyond their hopes, I think, knives, shirts, tobacco, beads, rings, bells, &c. They certainly appeared very much gratified and I think altogether our visit left a good impression.*

Saturday, 21st January.—Temperature — 11°. Although the weather was still very bad, we started. The whole again turned out to speed the parting guests, and, with much shouting and shrieking, dragged our sledges about three hundred yards on the road round the cape, that is, the sea ice. We had sad work in returning through the heavily packed ice, and broke our sledge very seriously, which caused us much detention. In the end, however, I was not sorry, as it gave us another trait in these peoples' character and habits. We passed several sledges returning to King-a-ghee with wood, for, as I think I before said, these is no wood to the northward, where the village is situated, but they are obliged to go five or six miles to the southward, round this heavily packed ice, to get every bit of firewood they use. This is a sad drawback, but no doubt the advantages of fishing and having the open water so near, with the smooth ice on which to drive their sledges, amply counterbalances it. This circumstance, I imagine, tends to prove the existence of the northerly current, and also that the wood found in such abundance mostly comes from the southward. It was quite dark ere we reached the land, and we pitched our tent as quickly as we could, having been on the road about seven hours; altogether we had done little more than eight miles, but it was equal to twelve of any other part of the journey. Temperature +13°.

Sunday, 22nd January.—We had to repair our sledge, and just as we had finished it and were going to have prayers, we were surprised

* Spades, small hatchets or bill-hooks, butcher's knives with sheathes, and glover's needles would be admirable things for bartering with these people. But all ought to be of good quality, strong and serviceable. No one knows who has not experienced it the amount of ill-will, suspicion, and distrust engendered by bartering with inferior, bad articles, made to sell and not to use!

by three arrivals from King-a-ghee. Ark-roo-ark, the Chief of the lower village was one. They had heard that we had broken our sledge and had brought another to barter with us if we found it necessary to replace it. Although I believe it was in the regular course of trade with them, I must say I was much pleased with the promptitude with which they came to remedy our mishap. However, they wanted too high a price for it and we made ours answer sufficiently well. Our friends in the upper village had warned us that these people were thieves, and we certainly suffered some losses. Mr. Gilpin lost his flint and steel, and one of the men lost his knife. We, some three or four months afterwards, took justice upon this thief by laying violent hands on his spear, telling him when he brought back the knife we would restore the spear. He had two or three companions with him, to whom he shouted out lustily, but they refused to assist him and he mounted his sledge and started off at full speed to ruminate on our mode or ideas of justice.

I was certainly glad to get quit of them, and, after making Ark-roo-ark a present, we packed up and started. Our journey lay along the land, which was very favourable for travelling. Being Sunday, and the arrival of the natives having interfered with the morning service, we pitched early, having travelled about six hours and accomplished nine miles of our journey. We had dinner, read the prayers and psalms for the day, and retired to rest. I was glad to be free from the natives, they are not pleasant companions.

Monday, 23rd January.—Temperature +4°. Our dogs began to fail; it was also snowing the whole day. Passed our fourth sleeping-place on the outgoing journey about 1h. p.m. Passed near the deserted tupucs, but it was so thick that we could hardly see 100 yards around. Our native guide, or rather Mr. Gilpin's guide, was invaluable to us. His name is Pow-y-anna, and he certainly worked hard and well. I walked on before the sledge, as it was always necessary to have some one twenty or thirty paces ahead of the dogs to encourage them. If he saw me taking a wrong lead among the heavy hummocky ice he would shout out "Hoy Hollopey Sollopey," warning me to go into a better track,—that was the way they pronounced my name. Others were nearly as bad: Gilpin was "Killowpin;" Hobson was "Apshin;" Sharpe, "Sharpey," and so on.

The way was very tedious. We were often up to our knees in sludge and drift snow, notwithstanding the snow shoes. When dark, I determined to push in for the land and pitch the tent in the first available spot. For the first time we found no driftwood, although I afterwards understood from Mr. Gilpin that Pow-y-anna could have taken us a little further and shown us some; however, we had the spirits of wine to fall back on and we did very well. Our sledge was in a very bad condition, and I regretted not having taken advantage of our King-a-ghee friends' offer. We were, however, so near King-o-wick or King-how-common that Pow-y-anna went early in the morning and borrowed a sledge from the tupucs; with which we pro-

ceeded, having three sledges instead of two. Three crows past us. Such is the silence and death-like stillness that such a sight and such a sound is worthy of note.

Tuesday, 24th January.—Zero in the morning; —26° in the evening; —30° at midnight. Snow and sleet all day; felt almost wet through even with double skin coats on. Towards night it cleared, but the cold became intense, and, wet as we were, our clothes became as it were encased with ice. I was most anxious to get into the land for the sea ice was still rugged and sludgey, so that every five minutes or so we were ancle deep in what seemed to penetrate every pore. The sudden clearing up, pleasant as it was, being accompanied with such severe cold, made us feel it bitterly, and Mr. Gilpin was severely frost-bitten in the face whilst preparing dinner and getting wood for the fire. These sudden changes, accompanied with a keen wind, try more than a far lower temperature.

Our resting-place was in an open valley, exposed to the North. I was quite thankful when the wind went down. The tupuc in which we slept going up was not a mile distant, but I had no wish to try it again, more particularly as Mr. Gilpin told me in his journey up he had slept there, and had been joined by two other parties, who so filled the whole place that he could not stir out the whole night, and that, according to their usual habits, the stench became almost overpowering. It is not pleasant to dwell upon these things, but it is impossible to understand what these people are, and how revolting they at times become, without doing so.

Wednesday, 25th January.—Thermometer —35°. A beautiful day, but very cold travelling along the rugged cliffs of Cape York, or that part of the coast between the valley beyond the tupuc and Cape York. Ravines, steep cliffs, with little or no beach, characterise this part; no drift-wood is to be met with, and it would not be easy to get upon the land in any part, or to find twenty square feet of level ground. Snow very soft and heavy—even with our snow-shoes on we sank continually above the ancles. Just at sunset we got in upon the beach skirting the northern shore of Port Clarence, and again came on abundance of driftwood. A remarkable double-peaked point stands out by itself in the centre of this valley; which, like that at King-ah-wick, has every appearance of having been the bed of the river, but there is no stream of any magnitude hereabouts.

We were all suffering from diarrhœa—natives were worse than we were. Mr. Gilpin suffered very much. Some were inclined to attribute it to the pemmican, but it was more likely the exposure and over-exertion. The remedy (morphine) is almost as bad as the disease; it produces such a distressing drowsiness when we feel at the time every exertion is necessary. Our dogs also began to give way and they were failing fast,—from the first they were not by any means powerful.

The day was so clear that we distinctly saw Ratmahoff or Ik-maak-llitke, one of the Diomede Islands. We were now about eighteen miles from the ship, and had travelled nine hours, accomplishing about twelve miles. Temperature —35°.

Thursday, 26th January.—Temperature —32°. A dark and gloomy morning. The night had been beautiful, but piercingly cold. The inside of the tupuc was encased in ice. We were joined on the night before by our companions on the up journey—Innevaya, her husband, and child. They only left King-a-ghee on Monday, but, as I said before, they are so much lighter as to luggage than we are that they invariably make better work than we do; and they also understand how to manage the dogs better. They had but three, and sometimes only two; we had five to each of our three sledges;—notwithstanding, these two dogs had less work than ours. The travelling was very good now we were on the Point Jackson beach. The natives erect numerous marks on these flat beaches to guide them, as they go when the snow is deep and the drifts heavy. We also came across some of the stacks we had made in September and October, when we were wooding down here in the ship. We got over about ten miles to day. Temperature —20°.

Friday, 27th January.—Temperature —23°. We packed up for the last time, and about 10h. a.m. got sight of the ship. Travelling was heavy, men and dogs were both complaining; the two natives were both suffering much, and they had been of great assistance to us. We did not go into Sin-e-ra-meute but kept on the outer beach. However Pow-y-anna sent some seal and a bag containing hard frozen oil to his wife by one of his neighbours whom we met on the road. We found the ice had in many parts separated from the land, leaving broad cracks sometimes nearly a foot in width. These, having been filled up with snow, could not always be distinguished and the sledges got into them, causing us much delay. Temperature —24°. About 5h. p.m. we arrived on board, and were glad to find all well. James I. used to say it was too great a luxury for a subject to scratch himself. I felt it to be as great a luxury as I ever enjoyed. All our clothes were lousy; therefore the pleasure of taking them off and having a wash may be imagined.

HENRY TROLLOPE, *Commander.*

THE NEW PROCESS OF TIMBER-BENDING.—*On the Probable Consumption of Wood in the British Isles Arising from the New Process of Bending Timber.*

It is an every day observation that mankind are too generally prejudiced against all innovations in long established systems to abandon these readily, and therefore any sudden interference with them meets at first with incredulity and probably contempt. Such was the case with many persons on first hearing of the process of bending timber. All their previous experience was opposed to admitting the possibility of doing so without injuring it; and at the same time to compel it to preserve a permanent and unyielding rigidity, without impairing the

grain of the beam, appeared to render it still more incredible. But this same process described in our last October number, (the soundness of the timber being placed beyond doubt,) it may be safely asserted that before two or three years are gone by, will entirely supersede the present wasteful and expensive system, and become general in this country. A lithograph attached to this number contains an outline of the machine by which the process is effected, and a sketch of some specimens of its work.

It is confidently asserted that the cost of curved wood consumed in the British Islands under the present method of supply in its natural condition amounts to at least five millions sterling per annum;—an enormous expenditure, but one which is partly occasioned by the deplorable waste inherent in that method as adopted in all trades requiring curved forms in wood. The value of chips alone in the various ship-building establishments of Great Britain—independently of the Royal dockyards—will afford ample testimony in support of this fact, without considering the collective waste in the many thousand workshops of all degrees in the United Kingdom.

But it can be shown that the whole of the produce of the above five millions can be more effectively gained by the new method for one-third of its actual computed outlay, thus saving above three-fifths of it. So momentous and seemingly incredible is this that we might not have ventured to promulgate the fact were it not corroborated by the decided opinion of such persons as Hooker, Rennie, Fairbairn, White, and others, all practical men of the day and well known as being among the first of their order.

But let us have recourse to a little arithmetic and condescend to consider the oval or round frames for looking-glasses or pictures. The very commonest of these articles cannot at present be obtained under several shillings—say, for example, ten. These ten shillings may be laid out in suitable straight boards, which may be converted into a hoop as if by magic, and then cut into thirty or forty frames, or even more, according to the thickness and strength required. Thus, at the above price of ten shillings each, a clear gain of £19 10s.—minus the expense of bending, say one shilling—will be secure. Again, taking a ship-timber bending-machine, costing little more than £700, competent to bend oak sixteen inches square, it will be found that this machine will bend ten pieces of timber in ten hours. The price of such a piece of straight oak, fourteen feet long, would be about £3; this, when bent to a right angle or less, may be safely considered as enhanced to three times its value when straight—say £9, and

Ten of these prepared in a day would produce . .	£90	0	0
Deduct expenses (roughly estimated) three men, &c.	3	0	0
	87	0	0
Cost of straight wood—ten planks at £3 . . .	30	0	0
Leaving a clear gain of	£57	0	0

Consequently, in fourteen working-days a machine would nearly defray the cost of its purchase. But even admitting that the above may have been overrated fifty, or even seventy-five per cent, ample margin is left for immense profits.

Many other examples might be cited, but the above are sufficient. It cannot be denied that the new process of bending timber will reduce the cost of ships of all sizes twenty-five per cent, and greatly increase their strength and durability by avoiding the necessity for using cross-grained timber.

We need say nothing of the best mode of forwarding the progress of such an invention. That should be left to those to whom it belongs. But it is evidently their policy to make it easily accessible by offering it at the lowest possible advantage to themselves, and thus extending the use of their bending-machines at so reduced a cost that such success may be fairly anticipated as will surprise even themselves.

Recovery of Sunken Vessels.

The gradual increase of the Naval and Mercantile Marine of this country appears but too significantly to have been attended with a corresponding increase in the number of losses, as upon reference to the Report by the Surveyor-General to the Board of Trade of the wrecks and casualties on the coasts of the United Kingdom for the year 1855, it appeare that during that period there were no less than 1,141 wrecks and casualties. Of these the total losses were 399; of which 385 are sunken and of vessels stranded 413.

The amount of property thus allowed to be sacrificed, and to became totally lost to the country, is in itself an evil of magnitude enough to be considered of national importance, and sufficient to awaken inquiry whether any means can be brought to bear for the recovery of so much property now practically lost, forming, as it does, in the aggregate an amount of wealth sufficient to tempt the boldest endeavours. Hitherto no successful attempt in deep water has been made to effect the object in question. The past efforts have been confined to the getting off of stranded vessels by means of lighters placed round them at low water and other inartificial modes. In cases where the navigation of rivers is impeded by sunken craft recourse is had for their removal to the destructive element of gunpowder. Whereas in the channel, at a comparatively slight depth—as in the case of the *Josephine Willis*,—there are no existing means for raising them; and those employed in getting off stranded vessels are very inadequate for the purpose.

A company has been established having for its object the recovering of sunken and stranded vessels by a process certainly possessing the

great advantage of being simple. The principles upon which the plan rests are those which have been tested and proved in every possible way. They do not involve any new or hypothetical contrivance or any speculative reasoning, but are the legitimate conclusions from proved data; it is only the application of the well known laws of hydrostatics that merits and will obtain the consideration of scientific minds. It is patented by Mr. Stephen Randoll Smith, a Shipmaster of practical experience, whose plan will be found attached to our November number, the prominent feature being the use of steam as a lifting power applied by means of chains passing through tubes in the central line of two flat-bottomed vessels. The idea undoubtedly is bold, and if capable of being brought to a practical result will certainly not only possess striking advantages over the tedious process of diving for valuable cargoes, hitherto brought up piecemeal, but will by a kind of *coup d'état* recover ship and cargo. It is perhaps scarcely necessary to observe on the profitable nature of such an undertaking if so important a result can be attained; moreover, the apparently short space of time that will be required for the operation in saving valuable cargoes from the corrosive action of salt water will be a great advantage. Our object is accomplished in bringing sufficiently to the notice of our readers this undertaking; and are not prejudging when we say it merits inquiry.

In an explanation of the plan of the company an illustration of the subject is given by taking the case of a 120-gun ship sunk in the channel, with the following statement:—

That in estimating the weight of a sunken vessel and the power required to raise it the following facts should be remembered:—

That any solid body (whether large or small in bulk in proportion to its weight) immersed in a fluid displaces exactly its own bulk of fluid, and the force with which the body is buoyed up is equal to the weight of the fluid which is displaced; hence any solid body of a greater density than water when wholly immersed in that fluid loses exactly as much of its weight as the weight of an equal bulk of the water—that is, of the water which it displaces. That the specific gravity of sea-water is 1,035 ounces to the cubic foot. That there are 35 cubic feet of sea-water to the ton, avoirdupoise.

The total weight of a 120-gun ship out of the water is, by a careful analysis of the weight of the materials therein, extracted from the *Encyclopædia Metropolitana*, under the head of Naval Architecture, shown to be 4,609 tons.

To ascertain the displacement of water caused by the immersion of such a ship take one item of the materials contained in the ship, viz., lead. Of this, the analysis shows there are 9 tons, or 20,160 lbs. In a bulk of 9 tons of lead the solid contents of a cubic foot thereof is, by the analysis, shown to be 752 lbs. By dividing the weight in lbs. of the 9 tons of lead by the number of lbs. in the cubic foot, we obtain the number of cubic feet of lead (26¾). and hence its displacement of an equal bulk of water.

The aggregate of cubic feet of materials in the contents of such a ship is shown by the analysis to be 147,264, and this divided by the number of cubic feet of sea-water in the ton (35) will give the specific gravity in tons of the displaced fluid, viz., 4,207, and hence the difference of the specific gravities of the ship and the displaced fluid is the weight to be lifted.

The specific gravity of a 120-gun ship is . . .	4,609 tons.
The specific gravity of an equal bulk of sea-water (at a calculation of 1,024 ounces to the cubic foot) is .	4,207
The weight to be lifted of a 120-gun ship sunk in the Channel, to restore its equilibrium, or float it, is therefore	402

The lifting power is that of steam, contained in the two flat-bottomed iron vessels. The available dimensions of each lifting vessel are: length 120 feet, breadth 30 feet, depth 20 feet. The total weight of each lifting vessel, with equipment, is 455 tons. By multiplying the length, breadth, and depth together we obtain the number of cubic feet therein:—

$123 \times 30 \times 20 = 72{,}000$, and these divided by 35 (the number of cubic feet of sea water in a ton) will give in tons the gross buoyancy of each lifting vessel, viz.,	2,057 tons.
Deduct the weight of lifting vessel with equipment .	455
The floating power in tons of each lifting vessel is .	1,602
A further deduction of one-seventh must be made for the space above load line, *i. e.*, the water line of the vessel when subjected to the greatest immersion consistent with flotation	229
The net available buoyancy in tons of each lifting vessel is	1,373
	2
The capacity for applying power in the two lifting vessels is to the extent in tons of . . .	2,746

With such an ample provision of lifting power it is anticipated that a company may be established for carrying on successfully operations in recovering sunken vessels.

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from vol. xxv., p. 665.)

Sunda Strait.—In the Strait of Sunda the wind varies from S.S.E. to E.S.E. from April to October, a period when it is called the East monsoon; and it varies from W.N.W. to N.W. during the West monsoon, which follows. This latter monsoon prevails in November and brings bad weather. In this strait there are alternate winds, from South before noon and from North in the afternoon, separated by an interval of calm.

Among the Sunda Isles, as far as Timor, the monsoons are the same as above-mentioned. The East monsoon begins in May, the wind varying from East to S.S.E., and attaining their height in June and

July. This monsoon is finer than the westerly monsoon, which brings bad weather, especially in November and December. The rains set in during this month, accompanied with squalls. The westerly monsoon begins in November, and attains its height in January. Rain sets in in December, lasting till the middle of February, accompanied by storms and severe weather. Then the monsoon gradually weakens till March. In April the wind becomes variable and the weather is pretty fine.

South Coast of Java.—On the South coast of Java the wind is from N.W. while the N.E. monsoon prevails to the North of the line—from October to April; which monsoon ceases in March. In April the wind is unsettled; in May it is steady from East, with fine weather; and from June to August it is strongest. In October the S.E. monsoon becomes weaker, and until the return of the N.W. monsoon the wind is variable. In the months of May and November the rains on this coast are very heavy.

In February and during the first half of March, as well as in October—that is at the change of monsoon,—alternate land and sea breezes prevail; but they are not so strong in October as in February and March. In these two last months, and even in April, the land breeze begins with a squall or sometimes with a heavy storm, and as soon as it is over the land breeze is found blowing moderately, and continuing until the return of the sea breeze. In April and May, on this coast, the sea breeze also begins with a heavy squall or a storm of short duration. We mention these facts; of which we know no other instances except in the Island of San Domingo, where this phenomenon takes place in the roadstead of Port-au-Prince and in the channel of Gonaive.

Island of Timor.—On the N.W. coast of Timor, from September to March, the N.W. monsoon is found, varying to N.N.W. In April or May it is succeeded by that from S.E., varying to S.S.E.; which terminates in October. The N.W. monsoon is the bad weather season, and in December the winds are very violent. This monsoon is only well established here about the end of November or December, and heavy winds, between West and North, accompanied by rain, continue till February. About the end of April or beginning of May the wind returns to East, varying to South, blowing strong on the North coast of this island, where it is then the fine season. The strongest winds vary between W.b.S. and N.N.E.

On the opposite coasts of Timor there is a great difference in the winds. The S.E. monsoon is very light on the South coast while it is very strong on the North. The South coast, during the first part of October, is stormy; while on the North these are only experienced in December. On both coasts during the fine season the land and sea breezes are strong. On the South coast the land breeze varies from N.E. to North, the sea breeze from S.S.E. to S.S.W.

In that portion of sea separating the Isles of Sunda from Australia calms are very frequent. Two monsoons are found there. One from West, in which the winds vary from S.W. to N.W., begins in Octo-

ber and terminates in April. During this monsoon it blows fresh, with occasional squalls, from December to February. The other monsoon, from East, varying to S.E., is really a continuation of the trade wind, and brings the fine season. The zone of the monsoons does not pass South of the parallel of Christmas Island. But to the East of this island its southern limit gradually approaches the parallel of 14°, sometimes even further South, and it generally varies between 14° and 15° S. To the eastward it reaches the N.E. part of the coast of Australia.

Coasts of Australia.—On the N.W. coast of Australia, from Melville Island to the N.W. cape, there are land and sea breezes. The former, from West, vary to N.W.; the latter from S.S.W. and S.S.E. These winds blow chiefly during the summer of this hemisphere; in the other months they are very variable and not so regular. They extend only a short distance from the land. But off the N.W., as well as the western coast, the general wind prevails. Off the western coast of this continent, North of the tropic, we find, like the foregoing, alternate land and sea breezes, but observations are so scanty here that we can hardly arrive at any general rule.

The following table, drawn up at Perth—the capital of the Swan River settlement—in 1832, will give a general idea of the climate of this coast. It is taken from Montgomery Martin's *History of the Colonies.*

Months.	Ther. Fah.			Barometer.			Winds.	Observations on the Weather.
	Max.	Mean	Min.	Max.	Mean	Min.		
	°	°	°					
Jan.	99	80	61	30·1	29·9	29·8	N.E., S.W.	First part of mnth. fine; middle cloudy; four clear days.
Feb.	106	83	59	30·1	30·0	29·8	N.E., S.W.	Eight cloudy days; three of rain; the rest fine.
March	95	79	63	30·2	29·9	29·6	N.E., S.W.b.S.	Generally fine; rain on 4th and 5th.
April	92	72	63	30·3	30·1	29·9	N.E., N.W., S.W.	Like April in Europe; fine and foul alternately.
May	74	63	48	30·5	30·1	29·5	E.N.E., N.W., S.W.	Seventeen rainy days and heavy weather from N.W.
June	74	59	45	30·6	30·2	29·8	W.S.W., N.W.	Sixteen of white frost; three ice; heavy storm with hail.
July	70	56	41	30·3	30·0	29·6	N.E., N.W., S.W.	Generally fine; ice on 1st and 9th; heavy storm with hail.
Aug.	79	63	45	30·3	30·0	29·7	N.E., S.W.	Ten days of rain; very damp; storm on 11th.
Sept.	76	63	50	30·3	30·0	29·7	N.W., S.W.	Cloudy weather; squalls and rain; storm on 18th.
Oct.	76	63	50	30·2	29·9	29·5	N.E., N.W., S.W.	Alternately fine and foul; squally.
Nov.	86	70	52	30·4	30·1	29·8	S.W.	Gale on 1st; squalls on 9th; storm on 10th.
Dec.	101	81	81	30·1	29·9	29·7	S.W., N.W.	Cloudy; bright sun; rain; middle of month fine.

On this same coast, from the tropic as far as Cape Leuwin, the prevailing winds are from N.W. and S.W. The climate is warm, rainy, and entirely free from snow. The strongest winds are from N.W., and next to them those from S.W.; the former blow with especial violence near Cape Leuwin. Hot northerly winds on the coast are trying but they generally last only a short time. During the summer months regular land and sea breezes prevail. The former begin at night and cease in the morning, varying from East to N.E.; the latter rise in the afternoon, blowing from West or S.W., and cease after sunset.

Off Cape Leuwin the prevailing winds are from West, varying during the summer from West to N.W. in the night, and to S.W. in the afternoon. These variations, however, are not regular, and never happen in the winter.

On the South coast, between the Recherche Archipelago and Bass Strait, the prevailing winds, from the middle of January to the middle of April, are from S.E. to E.N.E. During the night they blow from the land, and in the day time from the sea. They are seldom strong; while, on the contrary, the occasional westerly breezes which also occur at this period, are generally very strong, and sometimes more than that when they veer to S.W. Off the South coast of Australia, in taking a general view of the subject, it may be said that during the six or eight winter months southerly winds are always found, varying to W.S.W.

During this season squalls from S.W. are very frequent. In these the wind gets up from N.W., accompanied by fog or rain; as it increases in violence it generally veers to West, and as soon as it has a little southing in it the weather begins to brighten. As soon as it veers to S.W. it is in greatest force. The barometer, which at the commencement of this squall falls to 27.0 in., and sometimes lower, then begins to rise, and as the wind passes to South and S.S.E. it becomes weaker. The weather then quite clears up and the barometer rises to 28·0 in. It sometimes happens that the wind changes to West and even to North at the same time that the barometer falls. Although the wind may not then be so violent it must not be considered as over. Sometimes it returns after an interval of one or two days. Sometimes also the wind veers rapidly from N.W. to S.W., and then fog and rain last longer. Such in general is the course of the changes of wind near the South coast of Australia as well as in Bass Strait; while to the East of this strait, and on the East coast of Tasmania, the wind is generally from South to S.E., frequently accompanied with rain and fog.

Off the South coast of Australia the barometer rises with South winds and falls with those from North to South by the West; to the East and West of this continent it generally rises with moderate breezes from the sea and falls with those from land.

North winds do not prevail near the coast. They are found between the parallels of lat. 40° and 44° S. To the West of Tasmania strong breezes often found from N.N.E. sometimes shift suddenly to

N.W. and West. These winds are found between the above-mentioned parallels in the whole space comprised between the bank of Agulhas and Tasmania, their changes being sometimes very capricious.

Bass Strait.—In Bass Strait squally weather and strong breezes come from S.W. and prevail during nine months of the year. In January, February, and March sometimes easterly winds are accompanied by very fine weather. These winds must not be expected here at any other time of the year. In the strong winds, generally varying between S.E. and S.W., but most frequently from the former quarter, it is dangerous for a ship to be caught near the land between Cape Howe and Wilson Head. On the Australian coast to the East of this strait, as well as on the eastern coast of Tasmania, northerly winds are sometimes found, veering to N.E., but they seldom attain any great strength.

Having now successively dealt with the general winds found off the coasts forming the boundary of the Indian Ocean, we will conclude our information relative to this sea with some remarks on the winds of the Islands of Mauritius, Reunion, and Rodriguez, reserved on purpose that we might allude at the same time to the hurricanes, which so commonly visit them.

Islands of Mauritius, Reunion, and Rodriguez.—These three islands are situated in the zone of the S.E. trade winds, varying from E.N.E. to S.E., generally attended with fine weather, although sometimes they do drop rain.

At Mauritius the months of November and December are the hottest months in the year and those of the heaviest rains. In 1831, at Port Louis, the following observations were recorded of the winds:—In January and February the prevailing winds were S.E. and N.W.; in March N.W. and S.E.; in April S.E. and N.W.; the same in May; in June, July, and August S.E. regular; in September S.E. and N.W.; in October strong from S.E.; in November the winds are often variable; in December they are from East and S.E.

In the Island of Reunion the months from November to April are the hottest and the period of heavy rains. On the shores of this island land and sea breezes are found, and often at the time of the syzygies southerly winds varying to West. During the fine season, from April to December, S.E. winds are constant, only varying from E.S.E. to S.S.E. The wind generally freshens about nine o'clock in the morning, and falls about four in the afternoon. During the night it is mostly calm, and if this is not the case, that it will blow hard the next day is pretty certain. During the day if the breeze is moderate and it ceases early, the land breeze continues during the night. In June, July, and August the breeze is generally very fresh. The S.E. wind prevails during the winter, from December to April, although it is generally weaker and often interrupted by calms and westerly and N.W. winds.

At Rodriguez the wind is generally from East and S.E., pretty fresh, with sometimes squalls and rain. These winds are, however, generally accompanied with cloudy and foggy weather. Calms near

this island are seldom found. It is from December to April, and chiefly near these islands, that those hurricanes are met with which render navigation so dangerous at this period in parts of the Indian Ocean.

We will here return to the hurricanes of the three great seas of our globe, with some general remarks on them and their several routes, without entering into them as a separate study, as being beyond the limits of this work.

(To be continued.)

A VISIT TO CAMBODIA.—*By a Madras Officer.*

(Continued from vol. xxv., page 659.)

The next morning early we began to unpack and arrange our philosophical apparatus, so as to be in readiness for his Majesty, thinking he would come about midday. His curiosity, however, to see the things was so great, that he could not restrain himself, and before we had finished unpacking, the King was announced. He came attended as usual by a number of women, so that the little room in which we were was quite blocked up. His Majesty seated himself on the table on which all the apparatus was arranged, and began to examine everything, asking numberless questions regarding the construction, use, cost price, &c., of each article. He evinced much delight at the electro-magnetic machine in connexion with Smee's batteries, and made all his women try the shock, he himself holding them by the ears to prevent them from running away. We told him this machine was often used by our doctors to cure rheumatism, &c., and if properly used, was a very valuable curative agent.

The King then said, he had stiff ankle-joints and pain in his feet and legs, with a swelling on the right heel near the tendon achilles; this had annoyed him for some time, and baffled the skill of all the royal physicians. He said, if we could cure him, he would give us two hundred dollars; we refused the reward, saying, we were not medicos, and therefore it would be presumption in us to undertake a cure; but at the same time advised him to try regularly every day, for a fortnight, galvanism and *Holloway's ointment*, a pot of which we had brought with us. The King said, he would give it a trial, and would come again in the evening for us to administer it. He then went away, and, according to his promise, favoured us with another visit at six o'clock, this time bringing fewer women, but ten or twelve of his ministers, who were all anxious to see our wonderful machine, reports of which had by this time spread all over Oodong.

His Majesty first allowed his ministers a trial, winking to me to give each a powerful shock. One stout old gentleman could not let

go the conductors, but kept gripping them tight, looking the very picture of terror, and writhing like an eel, perspiration rolling off his brow in big drops, while he was making powerful efforts to prevent himself from bellowing out in the presence of the King, who seemed to enjoy the scene vastly, laughing until his fat sides shook again. After all had experienced the shock, his Majesty asked us to begin operating on him, which we did for a quarter of an hour, and then rubbed in the *Holloway's ointment.*

This evening we showed the King the effects of the spirit-lamp and blowpipe, and promised the next day, if he would let us have a larger room to do it in, to distil some spirits of wine from shamshoo, as well as to put the gilding and silvering apparatus into action. He said, we should have accommodation in the large court-yard, which I mentioned before as being the place where he retired to of an evening to see his women dance, &c., and ordered his people to have all the things taken over at once.

Next day, early, he sent to tell us all was in readiness, and request we would come over as soon as possible. The greater part of the forenoon we were busily engaged in preparing the necessary gilding and silvering solutions, of which an immense quantity was required, for the King insisted on our making our first trial in his presence on three very large beautifully chased silver salvers, which he wished to have gilt. This we did to his satisfaction and much to his delight. He immediately sent for a favourite goldsmith to learn the way, and to write down the names and uses of each article.

All the time the work was in progress, the King and his women were watching our proceedings with the greatest curiosity and attention. At about ten in the morning, his Majesty went to devotions in an elevated place at the further end of the court-yard. This pious task he was engaged in for nearly an hour, his back being turned to us, and his whole mind absorbed in prayer. The mischievous young ladies present, who composed his personal attendants, took the opportunity to surround us on all sides, beseeching and coaxing me to gild a number of little articles of finery they had about them, such as silver and copper rings, earrings, betel and tobacco boxes, &c. I did a few of them, but found it a very troublesome and never ending work, for, as fast as one batch was done, another was produced, and so we were at length ungallant enough to turn a deaf ear to all their entreaties, and placed a number of the proffered articles on a table close by, with a few that had been already done. The young ladies were so intent on coaxing and begging, that they neglected to take the things away, or to watch for the return of the King, who came upon them quite suddenly, making them fly in all directions like a herd of antelopes.

At first his Majesty took no notice of this, but when he saw the ladies' jewellery on the table, he became very angry, thinking that all the gold he had given for the purpose of gilding his silver trays had been abstracted from the solution for the sole use and benefit of his damsels. He seized on one unfortunate lady, (who it seemed

had been ordered previously by him to keep the others in check, and prevent them from troubling us, and who had therefore neglected her duty,) and administered with his own royal hands, in our presence, a wholesome castigation with a rattan.

At about four, dinner was announced, and his Majesty invited us to partake of it. We, of course, could not refuse such an honour, and found a table laid out quite in the European style, with a chair for each person. The table had rather a dirty piece of blachu spread on it, which served as a table-cloth. The plates and dishes were part of a very handsome set the King had received from Singapore as a present; the knives and forks looked as old Methusaleh, but had evidently been once a capital lot, for the handles were of porcelain profusely gilded, &c.; the steel part about them was, however, in woful condition, the blades of the knives looking more like pieces of old iron hoop than anything else, and encrusted with rust, and had doubtless never been cleaned or polished since they left the maker. The spoons were of the common composition metal, sold so cheap in Singapore and elsewhere. The tumblers were very antiquated articles, and must, I should think, have been sold by weight, for they were tremendously heavy, and their sides nearly a quarter of an inch thick.

The edibles consisted of various sorts of stew, very similar in taste and appearance to the Siamese dishes we had been favoured with in the house in the bazaar the first night of our arrival. Everything was, however, if possible, still more greasy and abounding in pork fat, &c. To do us honour, I suppose, a roast duck, trussed and cooked in European style, was also on the table, and what was better than all, plenty of first rate Bass's bottled beer was produced from the royal cellars. The second course consisted of various sorts of sweetmeats and fruit, with a bottle of rather indifferent port wine. Three or four favourite Siamese attendants were serving at table on their knees, and during dinner seven or eight ladies treated us to a Cambodian concert, on various musical instruments.

Before we left the royal presence, the King made us promise to come over early the next morning to show him the method of silvering metals. By this time we were all quite tired of manipulating, but did not like to refuse obliging his Cambodian Majesty, so consented to spend another day with him, never dreaming of the trouble we should have in operating on a large brass vessel, standing near three feet high, and upwards of twenty gallons capacity, which was used by the King as a bathing tub. This enormous vase, which put me in mind of Morgiana's oil-jar, in the old story of Ali Baba or the Forty Thieves, to our great astonishment was produced the following morning as the article on which we were to try our skill in plating. We represented the difficulty of silvering such a Brobdignagian affair without proper troughs for immersing it in, &c., but to no purpose, as the King seemed to have set his heart upon having it done, and overruled all our objections by saying, he was sure it was just as easy to

work on a large article as a small one, and that as for a trough, he had an earthenware vessel quite big enough to contain it.

Seeing that he would not listen to us, but insisted on our trying, we set to work, and after a good deal of trouble in preparing fresh solutions, &c., succeeding in giving the brass bathing-tub a thin coating of silver by means of the electro-plating process, with which his Majesty was perfectly satisfied.

Our work being finished, we were again honoured with an invitation to dinner, which was quite the same as that of the day before. The meal being over, the King sent for his four married wives and three of his daughters, to introduce them to us, and to allow them to get each a shock from the galvanic machine, the effect of which it seemed they wished much to experience. The lawful partners of the royal bed appeared to be all pretty well stricken in years, but paid as much respect to the person of the King as any of his subjects did, bending the knee and grovelling in the dust when approaching or addressing him. The daughters were of very different ages, one quite a child, the second appeared about fourteen or fifteen years of age, and the eldest we were told was about twenty-five. This last was very plain, and, like her father, much marked with small-pox; and his Majesty informed us she was to be given in marriage to a Prince of Siam. The four wives were dressed all in black, much in the Chinese fashion; but the daughters were lightly attired in salendangs and scarfs of different colours, exactly similar to the dress worn by the King's concubines. The Princess Royal seemed to be a great favourite with her father, and much respect was paid to her by the courtiers, who invariably addressed her by the same title as the King himself, viz., Poco Napursers or your Highness. This title we did not hear given to any of the other sons or daughters, so I conclude it is used exclusively in Cambodia to the eldest offspring of both sexes who are born in the purple.

One of our party having occasion to pay a visit to the large Malay village before mentioned as being called Campong Oolong, in order to collect some outstanding debts of his, we availed ourselves of the opportunity to ask the King for carts and ponies this evening, saying, we wished to start the following day. He immediately complied, and ordered three ponies and one travelling cart to be in readiness whenever we should require them. We then took leave of his Majesty, and proceeded to our quarters, rather fatigued with our day's work, but I am afraid not so much impressed as we doubtless ought to have been with the great honour shown us in having dined twice with such an exalted personage as the first cousin of the Lord of the White Elephant.

The next morning at six o'clock two of our party mounted ponies, and the other mounted the cart, handling the ribbons of his bovine steeds in masterly style, and making them go faster than I think they ever did before. We had not gone far when I found riding in Cambodia was no joke, at least with a native saddle and bridle, for the

former was so short and small it was impossible to sit anywhere except on the cantle, which was as sharp as a knife, and therefore no bed of roses to the unfortunate wight who, for his sins, was compelled to endure an infliction little less galling than that of Mazeppa on his Ukraine steed. The stirrups were composed of rope, pendent only about eighteen inches from the saddle, with no means of adjusting them to a greater or less length. The girths were likewise of rope, and fastened very loosely round the body of the pony, so as to prevent, I suppose, galling the abdomen of the poor animal. But this was a fearful annoyance to the equestrian not accustomed to maintain a balance, little less perfect than that required for a rope-dancer, in order to obviate the consequences that would ensue from saddle, rider and all slipping under the belly of the pony. Lastly, I must not forget the bridle, which was composed of thongs of hide, twisted into a cable, the bit being made of wood. I found my position so uncomfortable, I was glad enough to resign my beast to its owner, and took a seat in the cart.

The road all the way was pretty good, and the six miles or so separating Oodong from Campong Oolong was gone over by our active little bullocks in about an hour, the cart being very light, and much smaller and better adapted for rapid motion than any of those we had travelled in from Campoot to the capital. The Malay Campong lies in a North-easterly direction from Oodong, and extends along the right bank of a very broad deep river, the May-kuang, one of the finest in Asia, but till lately scarcely known to Europeans. It rises in Tibet, and afterwards flows through Laos, Cambodia, and Cochin-China, into the China Sea by a number of channels, which form an extensive delta. Beautiful little islands, clothed with the richest verdure, and showing most exquisite shades of green, diversify, here and there, the broad placid surface of this fine river, forming, with the picturesque looking huts fringing its right bank and the high mountain ranges far in the back ground, as pretty a landscape as any I ever recollect seeing.

On our arrival at the Campong, we went to the house of a Malay merchant, holding some office under the King, who was styled Bopit Sennaär. Bopit received us with great civility, and ordered his people to get breakfast for us, which was soon produced; and a capital one it was, much more savory and palatable than the Siamese or Cambodian dishes, of which we had lately had a surfeit. After breakfast, our host displayed for our inspection several specimens of rolls of silk, all woven by the Malay women in the Campong, and of really beautiful workmanship. We purchased a few rolls of each kind as curiosities, and then took a stroll along the bank of the river as far as the further end of the Campong.

On our return to the hut, we found a number of Malays assembled in it, partly I suppose to gratify their curiosity in looking at the Europeans, and partly to join in the discussion as to the payment of a long outstanding account. The Malays born and bred in Cambodia, though retaining Mahometanism and speaking the Malay tongue, in-

termixed with a number of Cambodian and Champa words, yet differ much in personal appearance from the inhabitants of the Indian Archipelago. They wear their hair very short, and often clipped in Cambodian fashion; their bodies also in general are slighter made, wanting the bull-neck of the true Malay, and evidently showing a mixture of Chinese or Siamese blood. Now and then, among the Malays residing in Cambodia, a man from Menangcabow in Sumatra, is met with, and the difference between the latter and the mongrel race of the former, is strikingly apparent at first sight.

The extreme heat of midday being now over, we prepared to return to Oodong. We therefore thanked our host for his hospitality, mounted our chariot, and about four in the afternoon arrived at our old quarters, just in time for dinner, and though rather fatigued with the shaking and jolting, yet well pleased with our trip. We had barely finished our repast, and were just solacing ourselves in the delights of inhaling the fragrance of a prime cigar, when our reveries were rudely interrupted by a bevy of the King's women bursting into the room, accompanied by two of his Majesty's younger sons, one of them being the lad who had honoured us with a visit before in the court of justice, on our first arrival. Though I am a devoted admirer of the fair sex in general, I must acknowledge that on the present occasion I was ascetic enough to wish our tawny nymphs anywhere but near us. Anathemas, not loud, but very deep, were freely bestowed on these restless curious daughters of Eve, who, regardless of our objurgations, turned everything upside down they could lay their hands on.

However, after satisfying their curiosity, inspecting minutely every thing in the room, now and then trying on our hats, or some other article of wearing apparel, we cooled them into something like a staid, sober, behaviour, and then inquired the reason of our being favoured with the visit. The ladies replied, they were in want of pomatum! soap, essences, and white bottles, of all of which they were confident we had a large stock! We assured them that they were mistaken, regretting they were so badly off for soap, at the same time adding, if we had known it when we left Singapore we would have brought them some.

But of course all our protestations of having nothing for them they persisted in not believing, and intimated their intention of staying where they were till something was produced! There was no mistaking this, and we were fairly now at our wit's end as to what was to be done, until at last I luckily thought of a bottle of naptha. This I told them was a valuable essence, and that it should be divided amongst them. They all smelt it, and though not much pleased with its odour, thought it must be good as it was European and moreover a novelty! So, after giving each a little, with as many small white bottles as we could muster between us, to our great relief they left us, taking the young Princes with them, who had each fallen in love with a pair of worked slippers of mine, and were wrangling in fine style for their possession. I pacified them by awarding the slippers

to the eldest, and a razor was given to the youngest, with which he was perfectly satisfied, and then both trotted off in high good humour.

The next morning the King sent for us to see unpacked a large telescope on a stand which he had just received from Campoot, that his Majesty had ordered some time previously from Europe through Singapore. We had brought the instrument with us in the *Polka*, but being loth to take charge of such a delicate thing all the way up to Oodong, fearful it might meet with injury on the road, we had handed it over on our departure from Campoot to the Governor there, informing him it was the King's property, and thus throwing all the responsibility on him. The telescope arrived at Oodong about ten days after us, and when the case was opened was found to be in good order and nothing damaged. The glass was an excellent one and of great defining powers, Fen & Co., Poultry, London, being the makers. It was a four feet achromtic, with brass mounting, one sliding tube, two day eye tubes, and four astronomical powers, on a portable brass stand and clip, packed in a mahogany case.

There being no high ground in the immediate vicinity of the King's palace, and plenty of trees all round it, shutting out what little view there might be, prevented any sufficient scope to test the power of the glass, a quarter of a mile being about the limit of vision. This we could not make the King understand, as I believe he thought a telescope ought to penetrate through every obstacle, and show him what was going on a hundred miles off. His Majesty was therefore rather dissatisfied with this trial, and next proposed looking at the sun, a very unfair test of the goodness of the glass, as the weather was rather hazy at the time, and the sun nearly vertical, thus making it difficult to get a good sight. With this observation, his Majesty, as might be expected, was still more dissatisfied, and protested he saw nothing, though he risked breaking his back by crouching down to look up a tube pointed not far from the zenith. The King then said he would wait till night, when he would send for us again that we might show him the moon and stars.

Accordingly, about nine o'clock, our services were once more in requisition, to point the new telescope to the celestial bodies. We had a beautiful view of the moon, which was nearly at the full, and also of a few of the fixed stars; but as for his Cambodian Highness he could see nothing to admire,—for his part, he thought the moon looked much better through the naked eye, and the stars only appeared to be other moons. He was therefore much disappointed, and deemed the telescope useless;—so much so, that he said he would not have it, and ordered his people to pack it up again to send back to Singapore. We, however, remonstrated, and represented the impropriety and want of dignity in sending back anything that he had once ordered. We told him the loss would fall on his agents, who would doubtless be much displeased at his playing them such a shabby trick, and very likely would refuse in future to execute any other commis-

sions. At this his Majesty relented and would keep it, though, as he said, it was of no earthly use to him, which was quite true; but then that was his fault for ordering it, and of course the loss ought to fall on him, and not on the agent at Singapore.

The following morning we intimated to his Majesty our wish of returning to Campoot in a couple of days, and requested that five elephants and two carts might be provided for us. The King gave the necessary orders to his people, and we began to make preparations for our departure. On the second day, finding that the elephants were not ready, we went again to the King, who told us in answer to our inquiries about them, that a report had just been made to him that one of his biggest war elephants had broken loose, and in a fit of rage had killed four people; that it was now at large in the jungle, and had baffled all the endeavours of his keepers to catch him. The animal being a favourite one, he was determined it should be caught, so he had therefore given orders to surround the patch of jungle he was in with a cordon of elephants, which were to be made to narrow the circle gradually, until the truant beast was finally overpowered by numbers. For this service all the King's elephants had been employed; we could not therefore have our colossal steeds until the following evening, when the King promised all should be ready for us. We were very impatient at this delay, as we had already been in Oodong upwards of a fortnight, and were much afraid that the chartered vessel would arrive at Campoot before we could get there, and incur demurrage. However, there was no help for it, and we were obliged to wait another day.

The next morning we despatched Baba Kee to the King to ask a final audience prior to our departure, and for instructions and letters that his Majesty might have for us. We were told to be at the durbar at eleven o'clock in the morning, and accordingly at that hour presented ourselves, and found the King awaiting us. The old gentleman was very gracious, and expressed his sorrow at our leaving him so soon. He gave two letters for Messrs. A. & Co., to whom he said that he intended sending a present of four covans of rice and one picul of sugar. His Majesty again talked about his coining machine, and commissioned one of our party with several small boxes containing facsimiles of the new dies he wished to have made in England; and on leaving said he would send one of his Simeons or clerks with us to Campoot, to deliver the rice which we had purchased from him, and to give orders to the Custom-House authorities not to take on this occasion the usual dues from us. An order on the Governor of Campoot was then asked for boats and men required in loading our vessel, of course paying for the same. The King consented to give the order in question, and agreed that payment should be made at the rate of one dollar per covan. But this was done to avoid the great trouble with the Governor on previous occasions in procuring cargo boats. The people knowing we must have them, always demanded an extra price, and often refused to give boats at all, thus placing us in a very

awkward position, and obliging the vessel to remain longer than necessary; now the boats would be seized, and the people compelled to furnish them at a moderate rate.

All preliminaries being now settled and his Majesty having informed us that both elephants and carts were ready, we bade the worthy old sybarite farewell, and after shaking him cordially by the hand, we bowed ourselves out, and returned to our quarters to have the carts loaded and sent on in advance a stage or two. As the dealers with one of our party in Oodong and Campong Oolong had not yet all settled their accounts, it was determined by us to leave Baba Kee behind to collect what he could, and come down to Campoot a week or ten days after us.

Jnst before we scrambled up into our seats on the backs of the elephants, our old tormentors, the ladies of the Harem, with their attendants, came flocking round "as thick as leaves in Vallambrosa" to bid us adieu. The poor creatures seemed to be quite sorry to part with us, and though the feeling was by no means reciprocal, we of course felt flattered by their good opinion of us; but I strongly suspect their chief cause of regret consisted in their not being able in future to forage about our rooms, picking up what they could in the shape of presents, &c.

At half past five on the evening of the 15th of May, we left Oodong for the first stage en route to Campoot, viz.: Oontong Kurweong. We had not gone seven miles when we found we could not get on further that night, as the elephant-drivers told us their beasts had before we started come in from the jungle, a distance of twenty-five miles, having been employed in catching the large war elephant before mentioned as having broken loose and done so much damage; of course the poor animals were very tired, and, in fact, showed unmistakeable signs of fatigue, we were therefore obliged to pass the night where we were. Luckily there was a small shed near; here we adjourned and made ourselves as comfortable as it was possible to be.

The situation was very romantic, and, as we bivouacked on the bare ground, within the sound of a rippling brook close by, watching the shades of evening close in, and gradually throwing the recesses of the forest into deep obscurity, only to be lighted up with the chastened beams of a moon nearly at the full, and the clear vault of heaven, glittering with the liquid radiance of stars, the firefly gleaming here and there amongst the underwood in the low ground, like the coruscations of reflected light on the facets of the diamond, listening to those extraordinary sounds all round, so well known to the traveller or sportsman who has ever spent a night in the depths of a Malayan jungle,—it was impossible not to admire the scene, and in these "woods and wilds" to look from nature up to natnre's God, and feel the littleness and utter insignificance of the proudest works of art, in comparison with the handiwork of the great Architect of the Universe.

(To be continued.)

Langstone Harbour Docks and Railway.

We find the following notice of this very important design in a copy of the *Portsmouth Herald*, and our own opinion having been already expressed on the subject, we are glad to repeat that of its neighbouring paper, which is so entirely in accordance with it. With no other motive than that of our own sincere desire to see our country benefited by this great design being carried out to its completion, we shall consider it one of the duties of this journal to follow it up until it is achieved, in the full conviction that by so doing we are assisting in planting one of those great commercial establishments on the South coast that have produced their good effects in the North.

Since it has been officially announced to the Corporation of Portsmouth that the Government will not accede to their application for the making of docks in Portsmouth Harbour, and entertaining as we do a very strong opinion that docks are absolutely necessary in this neighbourhood, we have personally visited Langstone Harbour, and viewed the proposed site—called Sinah Lake—in Hayling Island, which is situated just at the entrance of the harbour. We are impressed with a strong opinion that a more desirable situation could not possibly be selected, and in order that our readers may be in possession of all the information we can obtain, we have now much satisfaction in laying before them an extract from the report of that eminent engineer, Sir J. Rennie, upon the subject; which in addition to the report we furnished in our last from another eminent government engineer, must completely remove all doubt as to the practicability of improving the entrance to Langstone Harbour, the only objection we have ever heard started against the proposed site.

"I visited Langstone Harbour for the purpose of ascertaining the best measures to be adopted for improving the entrance and making docks in the interior of the harbour. I will therefore proceed to make my report upon the subject, which is founded upon information derived from the Admiralty charts, and my own observations."

After stating certain details as to the entrance near the sea, he says,

"First, with regard to Langstone Harbour. At high-water of spring tides there is only fourteen to fifteen feet upon the bar, and eleven to twelve feet at neaps. After passing the bar, the water deepens gradually both inside and outside until it reaches the narrowest part, between Cumberland Fort and Hayling Island, where it increases to a depth of fifty-two feet at low water of spring tides and continues of ample depth for a mile inwards. Ordinary springs rise fourteen feet, and extraordinary or equinoctial springs from sixteen to seventeen feet. S.W. winds occasion the highest tides, but N.E. winds keep them back. Westerly winds prevail during nine months of the year, and during the remainder of the year the wind blows chiefly from easterly points. The entrance is well protected by the Isle of Wight from the westerly winds, but lies open to winds from South to

East, and during gales from this quarter a heavy sea sets in on the bar.

"Such being the facts, in designing any improvements for the entrance two objects must be kept in view, viz., to give protection against the exposed quarter, and to increase the depth of water near the bar as far as practicable. In order to obtain these important objects, I have designed two groins or jetties, to be carried out from high water mark in a southerly direction, viz., one on each side of the channel, converging towards each other as they proceed outward, leaving an opening between their extremities of about six hundred feet, and if necessary to break the sea. Return heads can be made also at their extremities. By such an immense body of tidal water coming from the harbour (which covers a surface of nearly five thousand acres), the effect upon the bar would be most beneficial, and deepen it sufficiently to enable large merchant vessels and steamers to enter with the first quarter of the flood, and thus I trust that the two grand objects of protection and depth would be obtained. Secondly, with regard to the docks, there is ample space for dry docks, building slips, and warehouses. By means of the improvements above described, Langstone Harbour would become a safe resort for large merchant vessels, colliers, and other craft, and a depot might be formed, from whence H.M. steamers might take in their coal, and thus an additional valuable asylum harbour would be formed, and it is only surprising that this, considering its importance, has not been effected long since.

"By means of these docks and their connection with the South Coast Railway, and by it with the metropolis, a most important mercantile establishment would be formed, and one which has so long been required in this quarter and which would be calculated to produce the most advantageous results."

It will be seen by the above report that Sir John Rennie suggests that a depot might be formed where H.M. steamers might take in coal, and thus an additional asylum harbour would be formed. Now in this opinion we certainly coincide, and we hope the necessary steps will be forthwith taken to facilitate the improvement to the entrance to Langstone Harbour in the way suggested by Sir John, so that this beautiful harbour may no longer remain useless.

The Pitcairn Islanders.—*Removal to Norfolk Island.*

In the *Nautical* of April last is an account of a visit to that interesting little group of people, the Pitcairn Islanders, the object of which was one of great importance to their future welfare, and will form, with its results, an important epoch in their history. The anticipated period when their numbers would be so much increased as to render the island no longer capable of supplying their wants had arrived;

its narrow and circumscribed limits did not afford sufficient space for the increasing families, and inconvenience ensued which it was foreseen could only be remedied by some important measure. That measure was the removal of the whole community to another island, and the visit to which we have alluded was that of H.M.S. *Juno*, Commodore Freemantle, whose object was to offer the islanders the occupation of Norfolk Island in exchange for their beloved Pitcairn—hallowed to them as their home, the scene of their earliest recollections, endeared to them from their infancy, and beyond these the dark—shall we say dreadful—events connected with the history of their forefathers. The general feeling at the announcement of this provision for them by H.M. Government was one of regret. Some few indeed, it appeared, entertained hopes of staying, but the loss of the society of their friends when the time of departure arrived it was considered would overcome their reluctance to leave their native soil, and this appears by the number arrived to have been the case.

The most favourable season was asked for to effect the removal, and all that was stipulated for by them was the same seclusion they had thus far enjoyed—the separation from the rest of the world unhappily so essential to prevent that contamination with vice from which these pure-minded and excellent Christians shrink with horror. In the land of their fathers their's were paths of virtue, pure and unmingled with vice in any form. All that they desired, since they must leave it, was to be shielded from that vice to which, from the approachable nature of the island they would not be secure;—all that they desired, in fact, was to be permitted to remain uncontaminated by the world. We have no doubt that the proper measures, both as respects the Government as well as themselves, will be taken to secure this, and that they will hereafter form a bright speck, reflecting the beams of Christian virtues, in an ocean which is studded with dark spots where mankind yet gropes about as a cannibal in the ignorance of heathenism and the most abject superstition.

The intelligence of the removal of the Pitcairn people to Norfolk Island appears in the following extract from the Tasmanian *Colonial Times* of July 28th, besides having been reported to the Admiralty by Captain Denham, of the *Herald*. The account says:—

The *Morayshire*, ship, has been employed in removing the Pitcairn islanders to their new abode, Norfolk Island. She left Sydney on the 23rd February, and touching at Norfolk Island, landed a quantity of bread, maize, beef, tea, sugar, and other stores, sufficient to maintain the islanders during the first twelve months after their arrival, and whilst they are getting in the crops for the next year's supply. Thence she proceeded to Pitcairn Island, where she arrived on the 22nd April, and, after considerable difficulty, succeeded in taking on board all the inhabitants, with their goods and chattels,—in fact everything moveable, not forgetting the gun saved from the ever-memorable *Bounty*.*

* Captain Denham also adds the copper fish kettle and the anvil of the *Bounty*.

The vessel left Pitcairn Island on the 3rd May, with 198 souls, viz., 96 males and 102 females, the greater proportion being children. In the first six days half the voyage was accomplished—twenty-nine being occupied in completing the other part, owing to the boisterous weather encountered, the passengers suffering much from sea-sickness. Norfolk Island was reached on the 7th June, and the people disembarked on the day after in excellent health, to which the endless exertion of the Rev. W. Nobbs, their Priest and Surgeon tended not a little. One birth occurred on the passage, a boy, who was christened, and named, after the Governor-General of New South Wales, "William Denison."

The officers left in charge of Norfolk Island, and five prisoners, having embarked in the vessel, she left for this port (Hobart Town) on the 26th June, leaving the new arrivals well, happy, and quite pleased with their new home. Boisterous weather prevailed during the stay of the *Morayshire* at Norfolk Island, during which H.M.S. *Herald*, which was lying there, lost two anchors and a cable. The *Juno* was there also, having called in on her way down to the islands. The crews of both vessels rendered material assistance in putting the new inhabitants in the way of working, &c.

About three weeks before the Pitcairn people arrived at Norfolk Island, the *Southern Cross*, with the Bishop of New Zealand, called in for the purpose of greeting them. There are about 2,000 sheep, 450 head of cattle, and 20 horses, left for the new comers, with every requisite for the cultivation of the soil and for their comfort. The gun which belonged to the *Bounty* will be shipped in the *Herald* and taken home.

What possible interest this gun will excite in England is not apparent. Surely such a relic should ever remain to the descendants of the *Bounty*, rather than come here to be pointed at as the monument of tyranny and its dreadful consequences.

The Necessity of a Standard for Ships' Lifeboats.

"For if the trumpet give an uncertain sound, who shall prepare himself to the battle?"

[We find the following just remarks on the important subject of lifeboats for the merchant service in a contemporary called the *Life-Boat, or Journal of the National Life-Boat Institution*, and shall be glad to find that they have not been made in vain.—Ed.]

In the Merchant Shipping Act of 1854, which, conjointly with the Passengers' Act of 1852, now constitutes the whole law as regards all matters connected with the merchant shipping of this country, are certain clauses intended to afford protection to the lives of persons em-

barked in merchant vessels, by requiring them, under certain circumstances, to carry life-boats and life-buoys. In a review of that Act at the time (in Nos. 14, 15, and 17 of this Journal), whilst giving much credit to Mr. Cardwell, its originator, we pointed out some of what appeared to us to be its shortcomings and inconsistencies. Amongst others, that, unless ten passengers were carried, neither life-boat nor life-buoy was required to be on board any ship. We pointed out the absurdity and cruelty of such a limitation, which afforded no protection to any less number of passengers than ten, and which appeared to hold the lives of ships' crews themselves to be of no value, or, at least, as entitled to no protection. We also hazarded the opinion that every British subject embarked on board a British vessel was entitled to that protection from the law which might be denied him by the shipowner.

There exists another serious defect in that Act, which we deem of so important a character as to nullify all the advantage of those portions of the Act which we have above referred to as affording, in theory, a limited amount of protection to passengers above the number of ten in any one ship.

The defect we allude to is this—That there is no clause in the Act which defines the character or size of the life-boats to be carried, thereby leaving that most important point to be settled by the owner of the ship, who, in the majority of cases, being quite ignorant on the subject, can hardly be expected to attach more importance to the question than the Legislature appear to do, and who, in too many cases, therefore, will be, in a great measure, guided by the amount of cost, and will provide that which is cheapest rather than that which is best.

The above is no theory of our own, although it is no more than we anticipated when the Act of 1854 was first promulgated, but it is a fact which we have many opportunities for observing. We will mention a case in illustration. We were a short time since in a boat-builder's yard at the time that a shipowner, whose vessel had been chartered by the Emigration Commissioners, was ordering a life-boat. The question arose between him and the builder as to what should be the diameter of the zinc tubing which would form the extra buoyancy of the boat, and thereby make her a life-boat. The builder advocated a diameter of ten inches; the latter thought six inches would be quite sufficient, whilst tubes of that diameter would of course be *cheaper*. The argument used by the builder was that he thought the Emigration Officer of the Port of London would expect them to be of the larger size; that of the owner was that he thought that officer would allow the smaller to pass. The question of efficiency was not discussed, yet the larger size named was too small to be really efficient. We afterwards asked the builder why he had not told this gentleman how much more efficient would be the larger than the smaller tubing, to which he replied that he had learned by experience it would have been only a waste of words to do so; that the question was always one of pounds, shillings, and pence.

In a former number of this Journal we recorded the more extreme

case of its having been proposed to a boat-builder to hide the decayed parts of a worn-out boat behind the life-boat fittings. Such instances are sufficient to show that in a matter of such paramount importance, where the lives of many human beings are at stake, no discretionary power should be left in the hands of those whose pecuniary interest lies on the side of inefficiency. Yet the law as it now is, except in the case of emigrant shipe, which fall under the Passengers' Act, simply requires that *a life-boat* shall be carried, leaving the size and description of life-boat to the discretion of the shipowner; whilst in the case of the emigrant-ship, although some discretionary power is placed in the hands of the Emigration Officer, there is no officially recognised standard according to which the same should be constructed.

In all matters of importance in our public services where efficiency is required a fixed standard is adopted, and in some matters of much less importance than that on which we are now treating. The horses, arms, and accoutrements of our troops, and the guns, spars, and sails of our ships are provided after a given standard; and if even a new hat, or coat, or sword, is introduced in either our army or navy, a pattern one is exhibited at the official tailor's or outfitter's. And is not an instrument for the preservation of life of as much importance as those employed in its legitimate and even necessary destruction? And is not a life-boat, which, according as it is efficient or the reverse, shall prove to perishing human beings an Ark of Mercy or a Vessel of Destruction—is it not a thing of more importance than hats and coats?

Presuming that the reply to this question will be in the affirmative, and that the necessity for a Standard Life-boat will be admitted; the important question will then immediately arise—What description of life-boat shall be adopted as a standard? Our reply to this question is, that we know of no ship's *life-boat* at present in existence in this country which possesses the requisite qualifications, with the exception of that of Lamb and White (of Cowes), and of the collapsible life-boat of the Rev. E. L. Berthon, either of which would probably be too expensive for general use in ordinary merchant craft, and which, for such use, have other disadvantages. We know of no other ship's life-boat which we think deserving of consideration; and we consider the qualities of the majority of them to be a mere sham. A long canvas bag stuffed with cork shavings (the canvas sometimes rotten and the cork water-sodden) or a small metal cylinder is secured round either side of a common ship's boat under the thwarts, and these are often effectually concealed behind a wooden casing, so that no one shall be able to judge of the efficiency or non-efficiency of the mystery within; and the thing is then dubbed *a life-boat!* Where then shall a *standard life-boat* be found? We think the difficulty may be speedily solved. Let there be but the demand, and the supply will soon follow. We will suggest a mode of proceeding which we think might be successful.

Some five years since a public-spirited nobleman offered a prize of 100 guineas for the best model or design of a shore life-boat; in reply to which offer, within a few months, no less than 280 models and de-

signs were exhibited for competition. Now we do not mean to suggest that any private individual should offer such another prize for a ship's life-boat, although we think that such a work has a stronger, or at least a more special, claim on some of our leviathan shipowners, than had the work of affording aid to shipwrecked seamen from the land, on the distinguished nobleman above alluded to. But our proposition is, that Her Majesty's Board of Trade, into whose protective care (by the Act of 1854) the hapless victims of shipwreck have been especially consigned, out of the large sums at their disposal, gathered from shipping, and forming the Mercantile Marine Fund, should set apart, say £1,000 for this important work—a work which, if we look to the prospective benefit to hunanity through future time, of such an important engine for saving life, would be cheaply accomplished at a cost of £50,000.

We would suggest that this £1,000 should be devoted to the giving four prizes, of the respective amounts of £500, £250, £150, and £100, for the first, second, third, and fourth best ship's life-boats, not models or designs, which are often deceptive, but for full-sized boats; the whole of which should be submitted to similar practical tests of efficiency at one and the same time and place, under the direction of competent judges appointed to determine on their relative merits. Whether successful in practical result or not, this would at all events be a more serious effort to produce an efficient ship's life-boat than has ever yet been attempted.

Trusting that we have not been altogether unsuccessful in proving the necessity that exists for adopting a standard description of ship's life-boat, and the practicability of obtaining an improved description of such boats, we will, in conclusion, rapidly glance at what would still remain to be done before we should possess a system which would show to the world that, as a nation, we esteem above all sordid considerations, the duty of man to his neighbour—that we set that high price on the life of man, made in God's image, which a people professing to march in the van of civilization and Christian progress is called upon to do, if that lofty assumption be anything more than vain profession.

To effect such a work, we must be satisfied with no half-measures; we must grasp in one idea the extent of the work to be done, and determine, with God's help, to do it.

It will not then suffice to have one life-boat, constructed after an improved standard, on board every vessel carrying more than ten passengers; but the principle must be at once adopted that there shall be life-boat accommodation on board every vessel sailing under the British flag for every human being embarked under its protection.

Even in the crowded emigrant or troop ship, with the aid of the Rev. E. J. Berthon's splendid invention of an efficient collapsible life-boat, the carrying out of so truly national a scheme is readily practicable. Having advanced thus far, and provided every vessel with her registered number of officially approved-of life-boats, we conceive that but two other things would require to be done to complete the system

for the protection of life on shipboard, so far as we comprehend it. The first of these would be to adopt, compulsorily, Clifford's or one of the other improved methods of lowering boats at sea.

The second would be to adapt the same principle, as regards life-boats, as is practised, for the protection of the public, in the case of all public vehicles on the land, viz., to authorize every boat to carry a fixed number of persons, and to require, under penalty, that number to be legibly and conspicuously painted on each boat. As the aggregate number thus recorded of all the boats of any vessel would be equivalent to the greatest number of passengers she was licensed to carry, every person within her would have always present to him the fact that there was life-boat accommodation for *all* on board, which assurance would of itself prevent much of the panic and confusion that arises on occasions of disaster at sea; whilst the officer or seaman in charge of each boat, as he would know the exact number she was allotted to carry, would take care neither to suffer more persons to rush into her than that number, or to shove off from the vessel with less, both of which causes, but especially the former, have occasioned the loss of so many human lives which might otherwise have been saved.

BOTTLE PAPERS.

(Continued from vol. xxiii., page 156.)

WINDERMERE.—Track No. 43 *a*.

We find the following in the *Shipping Gazette* of the 17th July.

"Report of the *Timbuctoo*, at Bristol, July 15th, sailed from the West coast of Africa, May 14th:—

"A bottle, with a slip of paper enclosed, containing the following:—'Thrown overboard from the barque *Windermere*, bound to Hobart Town, the 20th of Aug. 1850, in lat. 4° 24′ N., long. 20° W., was picked up by the natives on the beach at Picaniny, Lahou, West coast of Africa, March 6th, 1851, which is in lat. 5° 8′ N., long. 5° 18′ W.'"

The *Windermere* appears to have been on the outer edge of the Guinea Current when this bottle was thrown overboard, and it has followed the usual course of that current to the eastward. The bottle No. 43 *a* is another instance of the same kind.

KINNEAR.—Track 43 *b*.

Maranham, 28th September, 1843.

SIR,—I have the honour of transmitting to you the enclosed, which was picked up on the 2nd of August at the bar of Tutoia, entrance to Parnahiba, on the coast of Brazil, which place lies in lat 2° 38′ S., long. 41° 48′ W.; and there can be no doubt that the bottle which contained the same came ashore on the day it was found, for the person who found it and delivered it to me

said, that he passed that way on the 1st, and on returning on the 2nd he discovered the bottle lying on the beach.

Without further to add, I remain, &c.,

ALEX. THOMSON.

"Ship *Kinnear*, from Sydney, New South Wales, to London, May 8th, 1843, lat. 8° 46′ S., long. 24° 18′ W. This bottle is thrown overboard to ascertain the course of the current by

HENRY KELSALL, M.D.
Surgeon, R.N.

"Have the kindness to forward this paper to the Editor of the *Nautical Magazine*, London, informing him *where* and *when* the bottle was picked up.
H. K."

The bottle above referred to was found on the 2nd of August, 1843, at the bar of Tutoia, coast of Brazil, lat. 2° 38′ S., long. 41° 48′ W.

KINNEAR.—Track 43 *a*.

October 12*th*, 1843.

SIR,—The enclosed was picked up by me in lat. 10° 25′ N., and long. 14° 45′ W., near the River Broat, on the West coast of Africa, on the 28th day of July, 1843.

THOS. FLIGHT,
Commander of the brig *Nunez*, London Docks.

"*Kinnear*, from Sydney, New South Wales, to London, 1843
latitude North 6° 6′, longitude West 24° 29′.

"This bottle is thrown overboard to ascertain the course of the current by
HENRY KELSALL, M.D., Surgeon, R.N.
"Passenger in the *Kinnear*.

"Have the kindness to forward this paper to the Editor of the *Nautical Magazine*, London, informing him where and when the bottle was found."

[We have inserted above the contents of the paper sent to us by the Commander of the *Nunez*. The Surgeon of the *Kinnear* will perhaps be so good as to send us the date when the bottle was thrown overboard, which unfortunately has been lost.]

On the above bottle paper Mr. Kelsall has obligingly communicated the following:

9, *Union Terrace, Plymouth Nov.* 14*th*, 1843.

SIR,—The notice of a bottle thrown overboard by me from the ship *Kinnear* forwarded to the Office by the Commander of the *Nunez*, and contained in the *Nautical Magazine* for this month, with a request to forward to you the date when the bottle was thrown overboard, would have been attended to before this, but that my diary of the voyage has unfortunately been mislaid. I can, however, from some data which I have by me, fix the desired period within three or four days, viz., between the 14th and the 18th of May, 1843; I am inclined to assign the 15th of May as the date; so that the bottle has made that course and distance in about 72 days.

I have little doubt but that other bottle papers will be forwarded to you hereafter, relating to the same subject, as, during the whole voyage from Sydney round Cape Horn homewards, I was in the habit of daily consigning to the ocean one or more bottles, containing each a paper noting latitude, longitude, and the day of the month, with a duplicate of those three important

points written on the back of the paper, in the event of the other side becoming obliterated by a drop of water getting into the bottle.

During the time that the ship was surrounded by the Sargasso or Gulfweed, I availed myself of every bottle I could obtain, for the purpose of ascertaining the direction and possibly the termination of that current.

I am, &c.,

HENRY KELSALL, M.D., Surgeon, R.N.

To the Editor of the *Nautical Magazine*.

[This is a remarkable illustration of the different prevailing currents of the ocean. The bottle which we call 43 *a* appears to have been thrown overboard in that part of the ocean between the northern edge of the equatorial current and the south-west edge of the Guinea current: and to have arrived at the place where it was found from its starting point, we can suppose it to have been carried first to the north-west, then to the north and north-east, (perhaps as far as the Cape Verds,) until it fell into the current, setting to the southward and eastward along the coast of Africa. The totally opposite course it has taken from bottles Nos. 43 and 44. adds considerably to the interest of it.]

STRATFORD.—Track 44.

A bottle from the *Stratford* of London, Capt. Abyah Locke, on her return from Otaheite, 21st of January, 1836, in lat. 4° 7′ N., long. 2 17′ W., was found on the northern extremity of Barbados, on the 8th of June following. The direction in which it has drifted is about W.N.W. ¾ W., true, distance about 2,100 miles, in four months eighteen days.

H.M.S. RAPID.—Track 44 *a*.

A bottle containing the following letter, imparting information relative to the currents of the ocean, was picked up by Mr. Edward Smith, Master of the brig *Samuel and Edward*, of Bangor, United States.

"*H.M.S. Rapid. Tuesday, February 24th*, 1852.

"In lat. 0° 30′ S., long. 22° 34′ 30″ W., experienced a strong current, running N.W., at the rate of thirty miles per day; two days previous, but in the above latitude and longitude, we had no currents, which induces me to send this bottle. Should it be picked up, note the day of the month and date, together with your latitude and longitude, and forward it me.

"ALFRED MESSUM, Master, H.M.S. *Rapid*."

"We are bound to Rio de Janeiro, and have had a fine passage from Madeira—fourteen days. Note—The bottle mentioned as containing this note was picked up on the beach in Galeon Bay, July 20th, on the N.E. part of the island of Martinique, lat. 14° N., long. 60° 56′ W.

"HENRY FROST, U.S.C.V.C.

(To be continued.)

H.M.S. RESOLUTE.

In our last number we had the satisfaction of recording in our own pages the resolution of the House of Representatives of the United States in reference to the repair of the abandoned Arctic ship *Reso-*

lute, and her being sent home with a request that "the United States might be allowed to restore her to her Majesty's service." So gratifying a mark of consideration, one so admirably expressed and since so ably carried out, it was not in the warm hearts of Englishmen to treat in any other way than in the same spirit of cordial friendship which suggested it. The *Resolute* duly arrived at Spithead under the excellent management of Capt. Hartstein of the United States Navy, and the events which ensued from this act of courtesy and esteem are related as follows.

Sir George Seymour, Commander-in-Chief at Portsmouth, left Portsmouth at an early hour in the *Fire Queen* to make the necessary arrangements for the royal reception. The steam-ship *Retribution* was ordered from Spithead to salute, and several gunboats and despatch vessels, together with her Majesty's yachts *Fairy* and *Elfin*, were anchored in the roads.

The Queen, accompanied by Prince Albert, the Prince of Wales, the Princess Royal, and the Princess Alice, left Osborne at a quarter past ten o'clock, and drove to the ship in an open carriage drawn by four grey ponies.

The *Resolute*, dressed in colours, had both English and American flags flying at the peak, and as soon as the Queen set her foot on the deck the royal standard was hoisted at the main. The *Retribution* then fired a royal salute, and the ship's company of the *Resolute*, standing on the rail, greeted her Majesty with three rounds of cheers.

Capt. Hartstein and the officers in full uniform, received the royal party at the gangway. They were Lieuts. C. H. Wells, E. E. Stone, and Hunter Davidson; Dr. R. T. Macown and Dr. Otis, Acting Secretary; Mr. Croskey, Consul for the United States; and Mr. Cornelius Grinnell, son of Mr. Henry Grinnell, of New York, the projector of the American Arctic expedition. All were presented to the Queen by Capt. Hartstein, who then addressed her Majesty in the following words:—"Allow me to welcome your Majesty on board the *Resolute*, and, in obedience to the will of my countrymen and of the President of the United States, to restore her to you, not only as an evidence of friendly feeling to your sovereignty, but as a token of love, admiration, and respect to your Majesty personally."

The Queen seemed touched by the manly simplicity of this frank and sailor-like address, and replied, with a gracious smile, "I thank you, sir."

The royal party then went over the ship and examined her with manifest interest. Capt. Hartstein traced her course on a map and indicated the most important discoveries of the American Arctic expeditions. In the course of conversation Prince Albert observed that Lady Franklin was very anxious for another expedition, to which Capt. Hartstein replied, that he was not surprised that she should be so, for he thought it very possible that Franklin or some of his comrades might still be alive among the Esquimaux.

After completing the inspection of the ship the royal party retired amid the enthusiastic acclamations of the spectators.

It was originally intended to request her Majesty to take luncheon on board, but the idea was subsequently abandoned through a diffidence as to whether the proceeding would be quite *selon les règles*. But after the withdrawal of the royal party there was an elegant *déjeuner* in the Ward-room, at which the following toasts and setiments were given among others:—"The Queen and the royal family," "The President of the United States," "The Union Jack and the Star-spangled Banner" "The Health of Mr. Cornelius Grinnell," "The future success of the *Resolute*, and may she be again employed in prosecuting the search for Sir John Franklin and his comrades." This last sentiment was proposed by Capt. Higgins, seconded by Mr. Grinnell, and evoked cordial applause.

Capt. Hartstein was invited by the Queen to dine and remain at Osborne till the next day, and all the officers were invited to visit the grounds at Osborne, a privilege of which they availed themselves at three o'clock.

All we are anxious to add with the record of these gratifying proceedings, is our desire that the mutual appreciation of that friendship which so happily exists between the two great nations, may pervade all their transactions with each other, and thus all their dealings with each other cannot fail to be carried on with the moderation and regard for justice that must cement that enduring esteem which is so heartily desired by the good men of both countries.

LOSS OF THE FRENCH STEAMER "LE LYONNAIS,"—*With One Hundred Lives.*

It is our painful duty to record this morning another terrible calamity at sea. The case in hand is not unlike that of the ill-fated *Arctic*.

The iron screw steam ship *Le Lyonnais*, Capt. De Vaix, sailed from this port on Saturday, November 1st, for Havre, with thirty-nine cabin passengers; and there were on board, including officers, crew, engineers, firemen, and steerage passengers, near 150 souls. She also had 20,000 dollars in specie on freight.

On the night of Sunday, the 2nd of November, the night being very dark, Nantucket Lightship bearing N.N.W., and distant sixty miles, the ship was run into by an unknown vessel. Nothing more was seen of the unknown vessel, and it is probable that she went down immediately.

Not so with *Le Lyonnais;* she remained with her after part full of water, and her bow high out of the water. All hands stayed by the wreck until the next day, when it was abandoned. The ship was provided with six boats, only one of which was a lifeboat. That boat only has been heard from.

On the morning of Monday, after it was resolved to abandon the

wreck, a raft was constructed, and about forty persons, including passengers, (probably steerage passengers,) took refuge upon it. It is the opinion of the second officer that the raft could not have lived through the rough weather that succeeded that day,—that it must have broken to pieces, and that all the persons on board were lost. There is room for hope that some friendly sail might have rescued them.

In another boat was the commander with some of the passengers. The boat was well provided with provisions, compasses, &c. It was the intention of the captain to pull for Montuak Point. This boat has not yet been heard from.

Another boat contained the second mate (Laguiere), the second engineer (Desfour), and several of the crew and passengers. This is the only boart heard from so far.

The list then is:—Saved, 16; missing, and probably lost, 130.

We have no account of the other five boats and the raft, save that which is given above.

The following details in relation to the saved are gathered from the second mate:—

The boat left the ship on the morning of Monday the 2nd. There was a heavy gale blowing, and the captain resolved to abandon the ship. She was then, and when Mr. Laguiere last saw her, with her stern sunk below water's edge, and her bow high out of water. On Tuesday he lost sight of the other boats. The second mate's boat contained eighteen persons. The weather was very rough, and the hapless voyagers suffered terribly. They encountered several severe snow-storms, and were short of water. They had claret, wine, bread, and preserved meats. They were beaten about six days, until the afternoon of the 9th (Sunday), and two of their number died during this terrible interval. On Sunday their eyes were gladdened by the sight of a friendly sail, which proved to be the Bremen barque *Elise*, Capt. Nordenbolott, on board of which they were immediately taken, and made as comfortable as possible. Their limbs were frozen, and altogether they were in a terrible condition.

On the next day, in lat. 40° 51′ N., long. 65° 40′ W. the *Elise* spoke the Hamburg barque *Elise*, Capt. Neilson, bound for New York. The Bremen barque was short of water, and Capt. Neilson immediately consented to give those saved from the boat a passage to New York. They all availed themselves of the offer except two of the passengers, who remained on board the Bremen barque, intending to go to Bremen. The Hamburg barque arrived below last evening, having on board fourteen of the ship's company of *Le Lyonnais*.

Two of this boat's crew died in the boat, which reduced their number to sixteen, all of whom are thus accounted for.

The sufferings of these unfortunates may be imagined. At present they are likely to recover, but their limbs are frozen and swollen. The ladies suffered terribly, but bore up with the fortitude for which the sex is so eminently distinguished in the presence of real danger.

The fate of both the vessels is at present uncertain, and the course

of the captain of *Le Lyonnais* seems to have been injudicious. Her position, when abandoned, would seem to indicate that she was tight forward, and under circumstances was safer than bad boats in a heavy sea.

Le Lyonnais was built at Southampton, England, and intended for the South American trade. She was temporily placed on the new French line from this port to Havre.

As the record stands, the narrative is heartrending. We have hopes, however, that as the boats were directly in the track of hundreds of vessels inward and outward bound, more of the passengers may have been rescued.

A letter from New York says;—

The vessel that came in collision with the steamer, and which unconsciously committed such terrible havoc, turns out to have been the barque *Adriatic*, a new vessel belonging to Belfast (Maine), and bound from that port for Savannah. Strange to say, that although the collision occurred on the 2nd, and the barque returned to Gloucester, Massachusetts, for repairs on the 4th, nothing was known of the disaster in any of the great northern cities until the night of the 14th, ten days after the barque arrived at Gloucester, which is only two days' distance from New York. And then, instead of learning anything of the collision from that point, we received it first from the survivors, who arrived here in the Hamburg barque *Elise*.

The report of Capt. Dunham, of the barque, and which he says was published in a Belfast paper, was evidently not one to attract attention, otherwise it could not have escaped the vigilance of the shipping reporters of the Boston and New York press. It was not what the importance of the event demanded: that is, premising the captain of the barque was aware of the mischief he had done. He says now that he was not aware of any fatal result; that he hailed the steamer and requested her to lay to; but that she disappeared, and he presumed kept on her course. As a reply to this we have the testimony of the survivors of the steamer, and that the latter fired guns from the time of the disaster through the entire night; but that no help came from any quarter, and that as nothing was seen of the unknown ship, after striking, the presumption was that she went down. Here are two entirely different statements, but which is correct it is impossible to say. It would seem, however, that as the barque was but slightly injured, it was the duty of the captain to have gone in search of the steamer. Had he done so, every soul might have been saved; as it is, the fate of 130 human beings is shrouded in a dreadful uncertainty, with the chances of life ten to one against them.

The steamer *Marion*, which has been despatched to the vicinity of the disaster, is fully equipped for a fortnight's cruise; but I have very little confidence in the success of her mission. It is now fifteen days since the fatal collision, and if the survivors who took to the boats and raft were not picked up by some passing vessel long since, it seems scarcely probable that they will ever be heard from till the sea gives up its dead.—*New York paper.*

The Late Rear-Admi. Beechey.

Rear-Adm. Frederick Wm. Beechey (1854), Naval Commissioner to the board of Trade, died on the 29th of November, in Westbourne Crescent, Hyde Park, in his 61st year.

This officer entered the Navy at the age of ten years, under the patronage of Earl St. Vincent, in the *Hibernia*, 110. He accompanied Sir Sidney Smith in the *Foudroyant*, 80, to Rio de Janeiro. In 1811, while serving in the *Astræa*, 42, he assisted, after a long and gallant action, in the capture of the French frigates *Renommé* and *Nereide*. On his return to England he was appointed to the *Vengeur*, 74, forming part of the expedition against New Orleans, where he served in the boats. His first commission bears date March 10th, 1815. On the 14th January, 1818, he was appointed to the *Trent*, under Lieut. Franklin, and accompanied Buchan's Arctic expedition. An interesting account of the voyage of the *Dorothea* and *Trent* on this occasion was published in 1843. In January, 1819, he was appointed to the *Hecla*, under the command of Lieut. Parry, with whom he penetrated to long. 110° 54′, within the Arctic circle, and wintered in Melville Island. On the 5th of November, 1821, he joined the *Adventure*, Capt. W. H. Smyth, who was then preparing to resume his survey of the Northern coast of Africa. While attached to this ship, Lieut. Beechey was promoted to the rank of Commander, and appointed to examine and report on the antiquities of the Cyrenaica, and of the ancient cities composing the Pentapolis. Comdr. Beechey executed a survey of the entire coast from Tripoli to Derna. In January, 1825, he was appointed to the *Blossom*, 24, in which ship he proceeded to the Pacific and Behring Straits, to co-operate with the Polar expeditions under Franklin and Parry. During the three and a half years that he was absent from England, he proceeded twice to Behring Straits, and in August, 1826, penetrated to a point Northward of Icy Cape, whence the ship's barge, under Mr. Elson, the Master, reached lat. 71° 23′, long. 156° 21′, only 146 miles from the extreme point reached by Franklin overland. In the interval he pursued his researches in the Pacific, where he discovered and took possession of several new islands.

In 1827, Comdr. Beechey, now promoted to the rank of Captain, discovered Port Clarence. After a voyage of 73,000 miles, and rendering the most essential service to the science of navigation, the *Blossom* arrived at Spithead in 1828. In 1835 he was appointed to the *Sulphur*, for the purpose of continuing the survey in the Pacific; but his health gave way before he reached Valparaiso, and he was compelled to return home. From 1837 to 1847 Capt. Beechey was continually employed in the survey of the Bristol and Irish Channels. From this important occupation he was removed by the Government to constitute and superintend the Marine Department of the Board of Trade, in which he was actively and usefully employed at the date of his death. He was promoted to the rank of Rear-Admiral in September, 1854, and filled the office of President of the Royal Geographical Society.

Nautical Notices.

The Rocas.

We find the following report in that valuable paper the *Shipping and Mercantile Gazette*, and transfer it here to warn seamen of the current referred to, very well known it is true, and alluded to in this journal in 1841 (p. 447). But the report would have been more useful than it is if the Commander of the *True Briton* had told us something of the cocoa-nut trees planted on the principal island by Lieut. Parish, of H.M.S. *Sharpshooter*, at the suggestion of H.M. Consul (Mr. Cooper) at Pernambuco, with the laudable object of rendering the islands distinct to passing ships. As two flag-staffs were seen, cocoa-nut trees might have been also, but they possibly might have been too small. The account of this measure will be found in our June number of last year (p. 329), and seamen will be rendering a service to their brother navigators if they will report them on any accidental glance they may occasionally have of the islets.

Extract from the log of the ship *True Briton*:—

Wednesday, Nov. 12th, 1856.—At 11h. 30m. a.m., sighted the Rocas Bank, bearing N.E.b.E. At 1h. p.m., the island then bearing E.b.S., distant about seven miles, made out two ensigns flying from separate flag-staffs; feeling uncertain whether it was a fishing-station or people in distress, close-hauled the ship that we might near it as much as possible. At 1h. 45m. one of the ensigns was hauled down, and the other appeared to be half-mast high. At 2h., tacked to the southward, intending to work the ship as close in as could be done with safety, and then send a boat on shore to ascertain the truth; but finding that instead of nearing the bank we were, in consequence of the strength of the current, constantly increasing our distance from it, I determined to send the boat away at once. At 2h. 15m. sent the cutter with five hands, provided with water, food, blue-lights, &c., in charge of the Chief Officer, with directions to reach the shore, if practicable, and to bring off any distressed people there might be there. During the boat's absence I continued to work the ship to windward, but lost ground so fast that at 5h. 30m. the bank was not visible from the poop deck. At 5h. 45m. the boat returned without having accomplished a landing, the Chief Officer stating that they had been as far as within two miles and a half of the shore, but that finding night was coming on, that the ship, in consequence of the current, was nearly hull down, and being apprehensive that if they continued to pull towards the land they would be unable to reach the ship again, he had deemed it necessary to return. At 6h. p.m. the bank was barely visible from the mizen-top, and finding it impossible to contend against the strength of the current, the Captain was reluctantly compelled to abandon all hopes of communicating with the shore.

Thursday, Nov. 13th.—Find that the ship during the last twenty-four hours has been set to the westward sixty miles.

Friday, Nov. 14th.—Find that the ship has been set to the westward thirty-six miles during the last twenty-four hours.

EDW. A. REYNELL, Commander *True Briton.*

BOMBAY HARBOUR.—*Green Light on the Dolphin Rock.*

The Court of Directors of the East India Company have published the following notice:—

That a fixed green light will be shown on the Dolphin Rock on and after the night of the 1st January, 1857. From high-water mark of spring tides the height will be 20½ feet to the centre of the light, and 36½ feet at low-water mark of spring tides. It will bear from the Sunken Rock Floating Light N. 4¼° E. distant 1·89 miles. Pilots or others, after rounding the Rock Light-vessel at a cable's length, should steer so as to pass the Dolphin Light at the same distance, keeping it on the Port side.

AUSTRALIAN LIGHTS.—We find the following on this important subject in the *Shipping and Mercantile Gazette*:—

A conference has been held at Melbourne on the subject of lighthouses. The Commissioners consisted of the Hon. W. Champ, Chief Secretary of Tasmania; H. H. Browne, Esq., Immigration Agent for Now South Wales; Captain Kay, R.N., Private Secretary, Victoria; and B. Douglas, Esq., Master of the Trinity-house, South Australia. As the result of their deliberations, it is expected that the following lighthouses will be erected:—1. By Victoria—a light on Cape Schank. 2. By New South Wales—a light on Cape St. George, Jervis Bay. 3. By Victoria and New South Wales jointly—a light on Wilson Promontory. 4. By Victoria, New South Wales, and Tasmania jointly—a light on Cape Wickham, the North end of King Island. South Australia having already voted the necessary sum for establishing lights on Capes Borda and Northumberland, is absolved from all contribution towards the additional lights in Bass Straits The report of the Commissioners having been sent over to Tasmania for the signature of the Commissioner of that colony, this statement is hardly to be considered a final one. There is, however, but little doubt of the propositions being eventually carried out.

HORSBURGH'S DIRECTORY.—*Lights at the Cape.*

Sir,—In page 634 of the *Nautical Magazine* for December, 1856, I perceive Mr. Salmond states that no mention is made in *Horsburgh's Directory* of any lights being exhibited on Cape Recif or on the Bird Islands in Algoa Bay, South Africa. I hasten to assure you it must have been an old edition of that work which Mr. Salmond had been

perusing; had he consulted the last edition (the seventh), published in August, 1855, by Messrs. Allen and Co., of Leadenhall Street, London, vol. i., pages 250 and 254, he would have found a full description of the above lights.

By inserting the above you will oblige, Sir,

Your obedient servant,

A CONSTANT READER.

To the Editor of the *Nautical Magazine.*

A verbatim copy of Mr. Chabaud's communication was inserted in our December number, as we stated it would be, being satisfied that those who really consulted *Horsburgh* as well as the pages of the *Nautical* would perceive that the assertion about the absence of lights on Cape Receif, as well as on Bird Island, was a fallacy in that gentleman's statement, which, however it may be wrong in that respect, will have been found a useful paper for the seaman. We gladly insert the foregoing letter on the subject, as it gives us the opportunity of offering our testimony to the valuable services of the writer in preserving in its proper state of efficiency, with the latest information, a work which will ever remain a memorial of the name it bears, as well as a proof of the careful diligence of its present compiler Captain Dunsterville.

H.M.S. MONARCH STRUCK BY LIGHTNING.—We congratulate Sir William Harris, no less than those who witnessed the stroke of lightning, as well as our countrymen who would have had to pay for its effects if they had not been happily averted, on the admirable success of his conductors on this occasion. The pages of the *Nautical* will testify how ardently we held up the admirable system by which Sir William Harris has protected our Navy from lightning, and the following is only another remarkable instance of the efficiency of his method. We hear of no poor seamen struck down now,—no ship rendered unserviceable from loss of masts, and such mishaps from lightning as was too often the case in former days, thanks to science rightly applied by Sir William Harris.

The following is an extract of a letter from high authority:—

"*Monarch, Acapulco, 2nd Nov.* 1856.

"This ship's mainmast was struck by lightning on the evening of October 22nd, when about a hundred miles South of Cape Corrientes. The fluid was conducted through the ship by Snow Harris, providentially without any damage, and exploded with an awful crash on the surface of the sea. The unitiated thought the masts and sails were on fire, which was only the phosphorus playing there, as the grand flash proceeded."

The foregoing is concise, but expressive and unmistakeable. We

may perhaps have more particulars hereafter. But it adds to the numerous facts already on record that all ships protected as those of our Royal Navy are by Sir William Harris's conductors, are safe from lightning! and many without them suffer as formerly!!

New and Corrected Charts, &c.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

	Price	s.	d.
England, West Coast, Liverpool Bay, corrected to 1856	- -	2	6
Pacific Ocean, Sheets No. 2, 3, 6, 7, 8, 10, 11, 12, various authorities, 1856, Sheet 11 1s, the rest - - - - each		2	0
Tartary, Port Sir Michael Seymour, Comdr. C. G. Forsyth, R.N., 1856		0	6
The River Thames, London to Gravesend - - - -		3	0
" Gravesend to the Nore - - - -		3	0

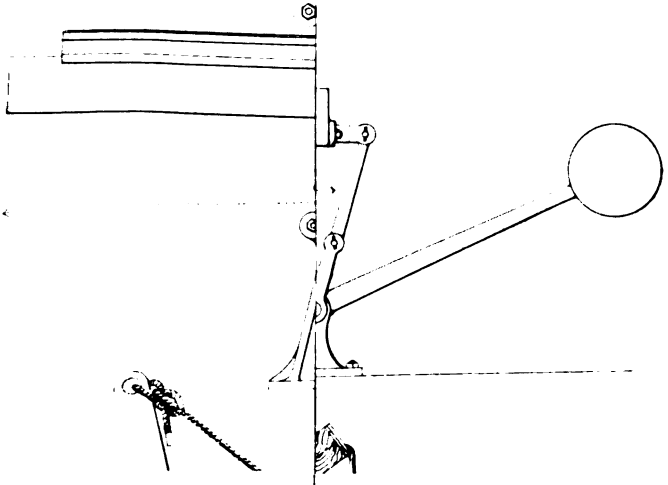
Edward Dunsterville, Commander, R.N.
Hydrographic Office, Admiralty, December 23rd, 1856.

Certificates Cancelled or Suspended.

Where.	*Name.*	*Ship.*	*When.*	*What for.*
London ..	G. Wright, *m.*	*Nymph*, of Whitby ..	20 Nov. ..	D., S. 6 months.
London ..	R. Wright, *2m.*	*Gertrude* ...	20 Nov. ..	D., S. 12 months.
Liverpool .	J. K. Lucy, *m.*	none	Nov. ..	F., S. 6 months.
Liverpool .	W. DeCourcy, *m*.....	*Ocean Monarch*	17 Nov. ..	I., Cancelled.
Liverpool .	D. Brown, *m.*	*Lotty Sleigh* .	Dec. ..	F., Ditto.
Liverpool .	Jos. Raw, *M.*	*Linda*	28 Nov. ..	D., Ditto.
London ..	J. Hobbs, *M.*	*Stella*, of Shields ...	11 Dec. ..	D., Ditto.
Dundee...	W. Caithness, *M.*	*Naomi*	1 Dec. ..	M., Ditto for loss of his ship.
Shields ...	M. Newton, *M*	*Majestic*, of S. Shields ...	5 Dec. ..	S. 6 mths. for neglect of lead, ship lost.
Liverpool .	W. E. Betts .	*Zebra*	22 July ...	S. 12 months, neglect of lead, ship lost.
Greenock .	A. L. Black .	*Brunella*	14 Sept. ..	Cancelled.

M. master, *m.* mate, I. intemperance, D. drunkenness, F. false statements, S. suspended, M. misconduct.

TIMBE N WALL.



been lost within the last four years,—

M. master, *m.* mate, I. intemperance, D. drunkenness, F. false statements, S. suspended, M. misconduct.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

FEBRUARY, 1857.

Want of a Light on the Pratas Shoal.

The following appeal of Capt. Biden, the intelligent Harbour-Master at Madras, in favour of a light on those dangerous shoals the Pratas, in the China Sea, has been transmitted to this journal, and we acquit ourselves of one of our first duties by preserving it for consideration and discussion. Capt. Biden has brought forward some important arguments in favour of the light, but one danger he has not touched, which is, that of a ship trying to make it and so getting too near the reef, and thus the light might decoy ships to their destruction. An important question is, how near can it be approached with safety supposing it to be from the Eastward, with the view of sighting it in hazy or foggy weather. We shall not presume to offer any opinion at present, but shall feel obliged to any of our experienced eastern commanders who will give us their views whether, under all circumstances of weather, current, distance to which it may be approached, or any other condition, the dangers of the Pratas would be augmented or diminished by placing a light on them. In the mean time the following particulars will be very acceptable on the subject.

Madras, 24th April, 1856.

The numerous wrecks which have taken place on the Pratas within the last few years, some of which are noted in the margin,* the sad

* Besides vessels wrecked in olden times as noted by Horsburgh, there have been lost within the last four years,—

loss of life, together with the very hazardous escape of those mariners who may have survived the calamity of shipwreck, are so notorious, that it assuredly behoves Government to adopt that one precaution so manifestly wanting to guard against such serious disasters, which, in a national point of view, are of alarming consequence, and prove beyond all doubt that more than tenfold the property has been sacrificed which would have erected a most substantial lighthouse and fixed a most efficient light with all the cost of their maintenance on that very dangerous shoal.

The Pratas, in lat. 20° 44′ N., and long. 116° 45′ E., are directly in the track of ships from the North-East coast of China, and the coast of Luconia, and are so beset by strong and uncertain currents, and without such soundings as can indicate a near approach, and there is, moreover, such a liability of thick and hazy weather in their vicinity, that mariners, without an observation by day or night, and uncertain of their true position, dread their being driven on this fatal shoal, which, without any neglect or fault on their part, may again and again be the cause of shipwreck.

I myself in command of a well-found ship from the coast of Luconia to the port of Canton, during the N.E. monsoon, passed a night of intense anxiety when passing to windward of the Pratas; and now that the traffic in that direction has increased and is increasing, it becomes more desirable that it should be marked by a lighted beacon.

This dangerous shoal is thus described by Horsburgh:—"It is composed of coral rocks, level with the water's edge in many places; in other parts there are from two to eight feet water over the rocks. On the N.W. part, about two or three miles inside the edge of the reef, is a low island of considerable size, and formed of white coral covered

Ship *Countess of Seafield*, Capt. Innes, 21st March, 1854, with about 750 tons of tea, silk, and wool, from Shanghae to London, crew saved; lost about 9h. p.m.

Ship *Charlotte*, 850 tons, John Lyster, laden with cotton from Madras to Canton, was lost at 2h. a.m. on the 17th September, 1852: crew saved.

American ship *Living Age*, from Shanghae to New York, lost in January, 1855, laden with a full cargo of tea and silk; crew saved.

English ship *Tom Bowline*, from Foochow, lost in January, 1855, same time as the *Living Age*, laden with tea; Second Mate and three men killed by pirates when in the ship's boats.

Portuguese barque *Joven Idhap*, laden with rice, from Manila to Macao, in January, 1856; two men died in the boats.

American ship *Mermaid*, Capt. Smith, from Bombay, with a cargo of cotton, wrecked on the night of the 2nd of March, 1856, on the North side of this shoal, having been carried on shore by the current, the weather previously preventing any observations being taken. Whilst at work saving cargo, the pirates set the vessel on fire, otherwise a thousand bales of cotton would have been saved. Capt. Smith also reported having been told by the wreckers that two other vessels, one Peruvian and one Dutch, had been lost there a short time before. Some of these desperate adventurers appeared to be European or American; there were two vessels at anchor near the shoal; some of the crew escaped in boats, and it was hoped they would be saved. One old Lascar died from exposure.

with coarse grass and shrubs. It may be seen three and a half leagues from a large ship's deck; is visible when near the Southern extremity of the shoal, but more conspicuous in approaching it from the West or Northward."

The South part of the shoal is a continued range of breakers steep to, extending W.N.W. and E.S.E., and although the water is very shoal on this part, the sea does not always break; the Eastern side does not break when the sea is smooth, for the *Eugenie*, in October, 22nd, 1805, was within three or four miles of this side at noon before the shoal was discerned."

When Capt. Ross surveyed this and other shoals in the China Sea in 1813, he found, on landing on the Prata Islet, a deep inlet or harbour for boats, with sufficient shelter for Chinese fishermen; and this haven is now the lurking-place of a horde of wreckers and pirates, witness the recent case of the American ship *Mermaid*, as noted in the margin. Horsburgh mentions in a note that the *Frederic Adolphus*, Swedish ship, was lost on the East side, September 4th, 1761, with the island bearing W.N.W., and that several other ships have been wrecked on this dangerous shoal.

The necessity of fixing a light on the Pratas has, I am well aware, been urged repeatedly by other persons; and so great an object as a safeguard to navigation can only be obtained by making it known everywhere through the medium of the press. There is, however, a very important question to be considered when a lighthouse on the Pratas is determined on, as this very dangerous shoal has obtained such notoriety, that it is infested by pirates and wreckers, and many vessels wrecked thereon have been plundered, and shipwrecked mariners have no sooner escaped from one danger than they have been assailed and their lives imperilled by those desperate marauders, who may, by their ill-gained profits and experience, be led to decoy strange ship by false signals, and get them within their grasp, for the purpose of serving their own vile purposes.

The lighthouse should be built with granite, which can be had in any quantity at the Grand Lema and Hongkong, distant about 160 miles from the Pratas, where excellent workmen can also be hired; and as the islet affords a sure and safe foundation for the construction, every means are available for erecting a substantial column, which should be as durable and habitable as possible, inaccessible to strangers, and afford a safe and comfortable abode for the keepers, who would be exposed to severe weather, and should be always ready to assist a friend or repel a foe. An iron lighthouse is out of the question, as within the tropics they are known to be intolerable.

As the amount of traffic on the North-East coast of China and from Manila has increased in a manifold degree since Horsburgh's time, and is vastly increasing, there may be a melancholy increase of disasters on the Pratas, and the sooner so very dangerous and prominent a shoal (directly in the track of all classes of vessels) is guarded and lighted the better; such a necessary precaution is urgently demanded by the calls of sound policy and humanity. And when we know that English,

Dutch, and American vessels have already been wrecked and plundered on that fatal shoal, and that trading vessels of all nations are equally exposed to the same risk, it behoves the Governments of those and all commercial states to give their best and commanding influence towards the speedy attainment of an object of such paramount importance, as it will assuredly tend to the preservation of life and the safety of property. Such an anticipated benefit cannot be doubted, when it is well known that those disasters which have occurred (and I verily believe they are more than twice the number herein mentioned) would have been averted had the Pratas been illuminated before they happened.

I have just heard from good authority that, six or seven years ago, H.M. brig *Childers* struck on the Pratas, forged over the reef, and anchored within it in smooth water. She was much damaged, and was docked at Bombay.

Your obedient servant,

CHRIS BIDEN.

Madras, 17th May, 1856.

When, in my letter of the 24th ultimo, I advocated the necessity of fixing a light on that very dangerous shoal and isle, the Pratas, in the China Sea, it was strongly impressed on my mind that other remarkable wrecks had occurred thereon besides those specified in the margin,* and under that impression I made a diligent search throughout the *Nautical Magazine;* and in the number for April, 1852, is a full and complete narrative of the loss of H.M. sloop *Reynard*, from which I have quoted the following extracts, together with some very appropriate remarks by the Editor of that useful and interesting journal, which well deserve especial attention :—

The dangerous navigation of the China Sea is notorious to seamen, and universally acknowledged. Studded as it is with coral reefs, some of which are as steep as a wall, the lead affords no indication of their proximity until it is too late to take measures for the safety of a ship unfortunately entangled among them. Occasionally, also, especially about the change of the monsoon, its dangers are increased by fog, equal in density to those of the Banks of Newfoundland. Thus it becomes of the utmost importance that the direction and strength of its currents should be defined, for it is evident that the seaman can only hope to attain an approximation to his position (in the absence of observations and soundings) by a correct knowledge of them.

To the want of this most important information the loss of H.M. sloop *Reynard* upon that dangerous reef, the Pratas, on the 31st of May last, may be attributed.

The *Reynard's* three years' service was drawing to a close; she had been most actively employed on the coast of China in the suppression

* *Countess of Seafield, Charlotte, Living Age, Tom Bowline, Joven Idhap*, and *Mermaid.*

of piracy, and had visited very many places on the seaboard of that extensive country, from Hainan in the South to the Great Wall, the Eastern terminus of which is in the Gulf of Leotong in the North, besides Formosa and Loo Choo; and was proceeding to Woolwich to be paid off, when her career was thus suddenly brought to a close.

On Saturday, the 24th of May, she arrived at Hongkong, from Amoy and Foo-chow-foo, and on Monday commenced a refit preparatory to her long voyage, that was greatly needed, as she had not drawn a fathom of rope since the previous September. To give her crew an opportunity of paying their debts, &c., before leaving the station a watch was allowed leave of absence. Arrangements were made to sail for Singapore and England on Thursday the 29th. Unluckily on Tuesday afternoon, the Master of the British brig *Velocipede* arrived with information of the total loss of his vessel on the Pratas, and that he had left the greater portion of his crew, twenty-four in number, on the desolate island of that name, exposed to a lingering death from hunger and thirst.

The senior Officer instantly ordered the *Reynard's* refit to be hastened, and by working all night she was enabled to get away at 10h. a.m. on Wednesday, together with H.M. brig *Pilot*, which arrived from Whampoa during the night, and was ordered on the same service.

The following is a statement of the circumstances attending the loss of H.M. late ship *Reynard*, on the Pratas Shoal, on the morning of the 31st May, 1851, as given by Captain Cracroft:—

In obedience to orders from Captain Thomas Leeke Massie, Senior Officer in China, a copy of which I have the honour to lay before the Court, I sailed from Hongkong at 10h. a.m. on Wednesday the 28th of May last, in company with H.M. brig *Pilot;* the joint object of the two vessels was to rescue the crew of the *Velocipede*, twenty-four in number, from their perilous position, exposed to a lingering death from hunger and thirst on the Pratas Island; and as there was a fresh N.E. monsoon blowing (although unusually late for the season of the year), I put to sea under sail only, having previously agreed with Commander Hickley as to our future movements. About 10h. p.m. the same evening, I took my departure from the Lemas; there was a heavy sea on, and in the night, during the greater part of which I was on deck, we split the foresail and driver. The next day at noon, the Pratas Shoal bore from us S. 70° E. ninety-four miles, but the observation was an indifferent one, owing to the hazy weather, and soundings at 1h. 30m. p.m. gave more water than was any where marked in our charts of that locality. I should here mention that the Master of the brig *Velocipede* was on board, and as we approached the vicinity of the shoals towards nightfall, I referred to him for information as to the direction and strength of the currents in that neighbourhood, which he had left only ten days before. The substance of his reply is embodied in the affidavit which I beg leave to lay before the Court, and have to regret that urgent business which required his pre-

sence in Australia, prevented him from being here this day to give evidence to the same effect.

Accordingly at 9h. 15m. I brought to, maintopsail to the mast, but with the gaff sails set, the ship drawing about 1·3 or 2 knots through the water. During the night I scarcely left the deck, and at daylight on the morning of the 30th, the shoal bearing E. 3° S. twenty-six miles distant, I proceeded under steam and sail in the hope of arriving at them before 10h. a.m. at the latest, but at noon the observation placed the ship forty-five miles dead to leeward of the shoals, the body of the Pratas Island bearing North, thirty-eight miles East, showing the existence of a S.W. set of forty-nine miles from noon of the 29th. Good sights at 4h. 30m. p.m. showed that the current had changed to the eastward, and the ship was kept turning to windward, the wind having shifted to E.b.N., varying occasionally from that point to N.E.b.E., under easy sail, and engines moving very slowly all night, in the expectation that at daylight she would be from twenty-five to thirty miles from the S.E. end of the shoal, or even farther, owing to the currents previously *experienced* on the two previous days. According to Horsburgh, there are no soundings on this side of the reefs, and a knowledge of this prevented my venturing the ship in the vicinity of them. But although keeping at so great a distance, my anxiety prevented my leaving the deck, and as the weather was inclined to get thick, an extra look-out man was placed on the fore-yard, and the strictest look-out was kept during the night.

About 4h. 10m. a.m., I told the First Lieutenant not to coil the ropes, as I wished to make sail at daylight, which was then just breaking, when my attention was directed to a peculiar luminous line on the water on the weather-bow; it resembled a moon-beam, but as there was no moon, I thought it might be spawn, and as the ship's place when I pricked her off at 3h. 30m. a.m. put her nearly thirty miles off the reef, I took no notice of it. Not half a minute afterwards, however, the look-out forwards called out 'A shoal ahead!' and almost at the same moment the Master, who was in the weather quarter-boat, and had just taken the cast of the lead—finding no bottom with fifteen fathoms,—called out 'Stop her,—go astern full speed.' But the warning was too late, and before the yards could be squared the ship took the ground forward, so gently at first that it was scarcely perceptible. My proceedings from this period are fully detailed in my report of the loss of the ship to the senior officer.

Extract from the affidavit of James Welch, late Master commanding the ship called the *Velocipede*, now wrecked on the Pratas Shoals, taken before William Gaskell, Notary Public at Hongkong, on the 21st day of June, 1851.

On the 20th of May we left the Pratas Island in the longboat. On steering a course North-West and by West, with the wind free, we found on the 23rd of May at daylight, when we had made the land, that we had been set forty miles to the northward.

H.M.S. *Reynard*, Sunday, June 1st.

Sir,—The *Reynard* is a total wreck. Will you go to Hongkong with the intelligence to the senior officer, and take the invalids with you. We must do what we can to save stores; and as we have made a good raft may succeed, but the ship will go to pieces with the least wind. She went on shore at 4h. 10m. a.m. yesterday morning, going about three knots, and bilged in the engine-room on a coral reef. I have no time to add more, but that I am, &c.,

P. CRACROFT.

To Commander Hickley.

The system of discipline maintained on board the *Reynard* was above all praise. After she struck, Captain Cracroft dispatched one boat to the Islet, ten miles distant, with provisions and water for the famishing crew of the *Velocipede*, and another boat to H.M. brig *Pilot*, whilst other boats were employed in laying out anchors; and when every effort to get the ship off had failed, a further supply of provisions was sent to the Pratas, and a raft was constructed, on which the remainder of the crew embarked, and were safely landed on the islet; whence, with the *Velocipede's* crew, every man was safely put on board the *Pilot*, on the 3rd of June. She had been cruising off the shoal, and kept in a most perilous position. The *Pilot* conveyed in a very crowded state all hands to Hongkong, and thus ended an expedition clouded with disasters, but illumined by conduct and character under very severe trials highly honourable to British officers and seamen, who nobly did their duty.

And here I have no hesitation in saying that no arguments can more forcibly illustrate the want of a light on the Pratas than the remarkable shipwreck of H.M.S. *Reynard*, as that vessel, admirably commanded and equipped for a survey of intricate shoals, was purposely sent to afford relief to a number of people whose lives were in jeopardy on that very shoal on which she was lost, and was then as well prepared in all that relates to its position to make it, as any vessel could be; but her well-experienced and gallant Captain was at the same time so ignorant of that extraordinary current, which in its set and velocity is so very uncertain, that he was baffled in all his calculations, and the care and precautions which he so anxiously observed failed in saving H.M. ship from a fate which would undoubtedly have been averted if the Pratas had been illuminated. The brig *Pilot* was at the same time in imminent peril, and had she been lost, the suffering crew of the *Velocipede* and those belonging to both H.M. vessels *Reynard* and *Pilot*, might one and all have perished. This remarkable event, happily as it terminated by the escape of so many brave officers and seamen, carries with it its own commentary. Wrecks have unfortunately followed, and yet the British Government have neglected year after year that safeguard which would have saved ships, lives, and property, from wreck and piracy.

And now the return of peace, *be it good or bad*, will leave many

ships and steamers at the command of Government, and I hope and trust the great national work of illuminating seaboards and shoals, wherever that safeguard may be wanting, will be strenuously carried into immediate operation.

It is most gratifying to know that lighting the Basses is at length determined upon, and I hope that work will be effectually done by fixing a light on each of the reefs.

Your obedient servant,

CHRIS. BIDEN.

N.B.—An officer of the Civil Engineers arrived from England by the steamer *Nubia* about six weeks ago, and has instructions from the Board of Trade to erect a lighthouse on the Great Basses; but I hope my earnest recommendation to fix another light on the Little Basses will be attended to. C. B.

We observe on the same subject, in *The Times* of the 30th of December, the following graphic letter from Captain Cracroft.

Sir,—A cry has arisen in the East for lights in the China Sea, not before they are wanted. From a journal kept while in commend of H.M.S. *Reynard*, in May, 1850, I extract the following paragraph on this subject:—

It will hardly be credited that neither in this dangerous channel (the Formosa), nor, to the best of my belief, on the whole coast of China, does there exist a single light, buoy, or beacon. The time must come when this subject will force itself upon consideration; for it is one of vital and growing importance, inasmuch as obvious circumstances tend to increase the interests involved.

In the year ending December 31, 1848, no less than 556 British ships, registering more than 204,000 tons, entered and cleared from the three ports of Canton, Shanghai, and Amoy alone. There is no return from Foo-chow-foo, because the opium vessels anchor beyond the limits of the port, but the arrivals in and departures from the Min must amount to at least sixty British vessels annually. Now many of these vessels must have passed through the Formosa Channel, and, as the currents in it are very rapid and uncertain, the soundings irregular, and the greatest vigilance has notoriously failed to insure security, the danger they incurred can hardly be overestimated. It has been, doubtless, in trying to keep clear of Ocseu that so many vessels have been wrecked on the Pescadores and Formosa; and to the perils of shipwreck on these inhospitable shores has been superadded, in almost every case, the unmitigated hostility of the inhabitants. Many vessels must have been cast away here of which no account has ever been rendered; but, perhaps, the most melancholy wreck that has come to my knowledge was the loss of the clipper brig *Ann*, commanded by one of the most skilful, experienced, and intelligent men in Messrs. Jardine and Matheson's employ, whose crew, after succeeding with great difficulty in getting safe ashore, were nearly all brutally mur-

dered by the natives. It is surely high time that attention should be directed to this subject in England, and that shipowners and underwriters should decide upon doing something to lessen the risks to which their property is exposed in this dangerous navigation.

So much for the Formosa Channel. But there is a still more dangerous locality to shipping than this, and in little more than a year from the time the above lines were penned my ship became a wreck, sacrificed, as too many others have been, before and since, to a want acknowledged by seamen as of the first necessity to navigators in the China Sea—"a lighthouse on the Pratas." And I venture, through the columns of *The Times*, to call attention to this serious deficiency, feeling assured that public opinion once awakened to the necessity will call upon the Government to authorize the construction of lighthouses not only there, but on the other eligible points in the vicinity of which shipping is exposed to such inevitable risks.

I will only add, by way of illustrating the enormous increase of trade that is taking place in China, that the exports of Shanghai, which in 1852 amounted to 9,018,294 dollars in 102 British vessels, measuring 34,383 tons, had increased in the nine months only ending 31st of March, 1856 (the latest reiurn), to 18,109,822 dollars in 119 British ships; and the total number of European vessels that left the port during that period amounted to 206, registering 63,998 tons. Of course this does not represent a tithe of the property that has to run the gauntlet of the Pratas; indeed, it may be said that every vessel bound to China or Japan is more or less exposed to loss on these dangerous reefs.

Pray bring your influence to bear upon this important subject, and you will earn the gratitude of all persons navigating the China Seas.

I have, &c.,

P. CRACROFT, *Captain, R.N.*

Hackthorn, near Lincoln, Dec. 27th.

NOTES ON A VOYAGE FROM ENGLAND TO BALACLAVA *in the "Gilbert Munro," late Store-ship at Hyder Pacha,—By C. R. Maclean, Master.*

(Concluded from vol. xxv, p. 673.)

Having reported the ship and the nature of her cargo to the Admiral Superintendent, I had to seek the office of the British Consul, and there to deposit the ship's muster-roll. But this I soon found was no easy matter; for, whether by accident or design, that gentleman's office is as far removed as possible from any position that would be convenient to shipping. Even after the Captain has discovered its locality not less than half a day must be occupied in going there and back. But for a stranger it would be quite hopeless to attempt find-

ing it. Fortunately, however, the several landing-places always abound in Greek and Jew boys, who speak a word or two of all languages, and for the consideration of a few piasters are ready with their services to act as guides for the stranger to any part of Constantinople.

One of these guides piloted me to the British Consulate, and on stepping from the threshhold of the naval offices what a change had come o'er the scene! Alas! the beauty of the city as seen from a distance was gone, and the stranger could scarcely believe that all the deformity and filth he now might see was that of the same Constantinople which lay once so invitingly before him. Half a dozen steps from thence and he is literally on a dunghill, redolent with the effluvia of dead dogs and putrifying rats! Well, following the guide, a turn to the left took me to a long narrow filthy lane, so narrow that "twa wheelbarrows might truly tremble when they met" in it. A lofty dead wall rose on either side with here and there something resembling a breach in it; which said breach was appropriated to a shop of the dirtiest description that could possibly be imagined. Considered as a whole, this street was a fair representation of a great uncovered sewer in which the savoury current had ceased and the stagnant water turned to mud, leaving the floating carcases embedded and putrifying in the mixture! This filthy thoroughfare is actually the main street of Galata; in passing through which the pedestrian is exposed to two evils,—one, that of being knocked down and suffocated in the mire, the other that of being crushed against the walls by the banditti of porters and postilions who are perpetually driving against and over every thing before them!

After wading through this uncovered sewer and escaping all its dangers, we commenced the ascent of a steep hill, which had the advantage of being more cleanly, but compensated for by being dangerously slippery. From this we were introduced to a somewhat broad and crowded street, rivalling Babel itself in the diversity of tongues. Here almost every language and nation boasted its native patron, and the all-familiar Bono-Johnny resounded from side to side, as repeated from every tongue. The shops in this street wore a more civilised and cleanly aspect, and over the door of almost every one hung a sign with a French name to it in addition to that of the proprietor, so that one might safely believe himself in a French town invaded by English with a foreign legion recruited from every corner of the North, the South, the East, and the West. British sailors and French soldiers were here to be seen fraternizing in cordial noisiness, the former of course tolerably drunk. There they were, vociferating Bono-Johnny to each other with all their might; now and then a no Bono-Johnny would be heard from a discomfited Turk, whose equanimity had been upset by his riotous and go-ahead allies. All this, with the din and confusion of such a thoroughfare, made up the tableau before me.

This was my first introduction to Pera, and through all this I steered after my guide with all the steadiness that the jostling of the crowd and novelty of the scene would admit of, till, turning sharp to the right, up a dingy dirty street, reeking with abominations decency

forbids to mention; in which, a few doors on the left, was found the office of the British Consul! But imagine, kind reader, what was my dismay when, after all the fatigue and up-hill work I had encountered in arriving thus far from the Golden Horn, to have the door of the said office shut in my face, and that too without the least explanation! However, this was an indignity I considered quite unnecessary to put up with, and accordingly I commenced a vigorous and protracted outer appeal at the door to the inmates until an answer to my summons was brought by a cavass blazoned in embroidery, and who evidently considered himself a person of no mean importance. Fortunately I did not understand a word he said, for I was not exactly in the mood to put up with any improper show of authority even in a suit of embroidery! And I fancy the cavass just saw as much by my looks, for having previous possession of the door, he did not seem inclined to dispute my right of entry. At least he thought it the wisest policy not to do so, and left me in quiet possession till he brought one of the clerks, a wobegone dissipated-looking youth, with whom it appeared the climate did not agree, and who brought the matter between us to a conclusion by stating that the hours of business were over, the office closed at 3h. p.m., and that it was then ten minutes past, and I could do nothing till ten o'clock the next day. So with this I took my leave, not very well pleased with my first introduction to business at Constantinople!

Leaving Scutari by times on the following morning, I reached the Consul's office shortly after ten o'clock; when, after much delay, arising from a press of business, I managed to get through all I had to do, and returned to contemplate the trouble, inconvenience, and loss of time arising from this extremely out of the way position of the Consul's office. Half a day in my case was thus passed merely in depositing the ship's articles and paying a small tonnage fee. The acting Vice-Consul, Mr. W. C. Cumberbatch, was most attentive to his duties, and conducted mine with that courtesy and *suaviter in modo* which marks the gentleman. All I had to complain of was the great inconvenience and loss of time occasioned by the distant and out of the way place where his office is at present situated, where so much business connected with shipping has to be transacted. Surely it would be practicable, and certainly but fair, that as the Consul's office, it is presumed, is made for the shipping and not the shipping for the Consul, a position might be selected for his office somewhere more convenient for the Captains who are obliged to go there.

The motley blending of the present with the past condition of civilization is the most prominent feature at Constantinople, for there the world has long stood still, and, at every turn, that presents itself which with us has passed away and is forgotten. However enviable the state of this city may have been in its day, enriched as it no doubt has been by being the great emporium of commerce in the East, one cannot but rejoice, for the honour and dignity of the human race, that it must be superseded by a higher and better, and that the Turk, with all his conservative prejudices and many excellent qualities, will ulti-

mately follow in the same path with those innovations that are revolutionizing Pera and Galata. Doubtless they will also extend to Stamboul, and this ancient city will cast out the filth that enshrouds her with pestilence and death.

Pera and Galata are connected with Stamboul by a bridge of boats reaching across a channel called the Golden Horn; which at the time of my visit was particularly gay and interesting, crowded as it was with the shipping of almost every nation, and every size and description. The bridge of boats is a very rough-looking affair, although its utility must compensate for its want of elegance. At the present time it has become subservient to an additional purpose, one that I have no doubt its projectors had scarcely contemplated, and one that in a better regulated state of society would attract the attention of the police authorities. Since the enormous increase of shipping at Constantinople has taken place, in consequence of the war, this bridge of boats has become the nightly rendezvous of a whole colony of dissipated and runaway sailors, and vagabonds of the lowest order. To afford better accommodation, or to reclaim this vagabond race, some philanthropic individuals have suggested the building of a Sailors' Home at Constantinople, and for this purpose subscriptions have already been raised to a considerable amount. My opinion may be founded in ignorance, but certainly I do think that Constantinople would be one of the last places in the world where a sailor would seek for a home: considering, as I do, that, first, no good man as a sailor would desire to leave his ship at such a place, even should a home be provided to receive him; and, secondly, if his ship be wrecked he can find a passage any where in another. It has struck me that a Seaman's Hospital at Constantinople was a far greater desideratum, instead of the uncomfortable, ricketty, dwelling-house at present appropriated to that purpose. A Seaman's Hospital, where comfortable accommodation and good attendance awaited him when sickness or injury compelled him to leave his ship, would, in my opinion, be a retreat for him far preferable to a Sailors' Home at Constantinople.

One cannot help recurring again and again to the disappointment met on every hand at not finding those beauties realised which were contemplated at a distance. But when this city of the East is actually entered one asks where are they? They are not here! they have all vanished! and instead of them there is the mean and dilapidated appearance of the houses in general, their gloomy and deserted aspect, their jealously closed windows all impressing the visitor with a feeling of melancholy and desolation, in addition to all his disappointment.

On the 6th of February I received orders from Commander Tudor, of the Government Transport office, to communicate with Mr. Tathum, Ordnance Storekeeper, and proceed with the ship to Hyder Pacha. Mr. Tathum informed me that on arrival at Hyder Pacha, I should immediately report the same to Major Gordon, commanding the Royal Engineers.

On the following day, at 8h. a.m., we departed from Scutari and,

under fore-topsail, dropped down, and at 11h. took up our position at Hyder Pacha, where we found at anchor the ship *George Rogers* and barque *William Wheatley.* Reported the ship's arrival to Major Gordon, R.E.

Our anchorage off Hyder Pacha was not one of the best, though the holding ground was good, for we were entirely exposed to S.W. gales, blowing up the Sea of Marmora with all the usual drift. True it is that with the wind from the opposite direction the water was as smooth as a mill pond, but with winds from the S.W. quarter the sea rolled with fearful and destructive violence on the Hyder Pacha and Scutari shore. Often, too, when the south-westerly wind did not reach the head of the Sea of Marmora, we had a heavy swell rolling in on the shore from the effects of fresh gales lower down the sea, an effect which often made the landing of stores impracticable.

February 11th.—The weather being fine and the sea smooth, I took the opportunity of landing at the temporary wharf of Hyder Pacha, about a mile and a half below the barrack hospital at Scutari and near the town of Yani Kiva. This town had once been large and respectable, but it was now little better than a heap of ruins, in consequence of a recent severe fire, though at what precise date it had taken place I could not ascertain. After visiting the ruins of the town, the general hospital and its cemetery were the next objects of solicitude,—the former with its two or three miles of beds and the latter with its sad records of the ravages made by war, disease, and death. We visited the large square Turkish barracks at Scutari; behind which is the extensive burying-ground of the Faithful, whose religious tenets do not admit of their returning to their parent clay side by side in the soil which contains the infidel of Europe. This enormous cemetery, with its white marble tombs and its forest of dark cypress trees, with its lonely solitude, cannot but impart a feeling of melancholy interest to the visitor. Here and there, when traversing its deserted paths, we observed a closely veiled female weeding or watering the shrubs or flowers on the grave of a departed relative, indicating the great attention given by the Turk, particularly the females, to keeping in order the graves of their departed friends.

The whole of Scutari and the valley of Hyder Pacha was nearly deserted by its Turkish inhabitants at the time of my visit, and now presented rather the appearance of an English colony. Streets and houses were named that never "bore a name before;" there were Barrack Street, Artillery Street, Raglan Place, Parsonage House, &c., &c., which, apart from the Oriental style of the buildings and some quaint and outlandish looking animals, an Englishman might fancy himself in one of his own country towns. At Ordnance House we accidentally met an old acquaintance of the far West, that to us was a very agreeable discovery, from whom we obtained some valuable and useful information on the internal economy and regulations in the Government of Scutari.

The English cavalry being quartered in and around Scutari and Hyder Pacha, when the weather was fine we were daily gratified by a

large display of cavalry (Guards and Lancers) on parade; and though they did not present all that glittering to which the Londoners are accustomed in their parks, and they might have disappointed those at home, still we had before us the real stuff, from which hard service had but taken off the polish.

In compliance with my instructions, in the morning I paid a visit to Major Gordon at the Royal Engineers' office, and learnt from him that he would require the use of some of the building material on board the *Gilbert Munro*. Thus commenced our business with the Major, and I cannot sufficiently express the gratification and pleasure the discharge of my duty afforded me as subordinate to so excellent an officer and gentleman as I found in Major Gordon. Notwithstanding the numerous and laborious duties which he had to perform, he was ever ready to listen to the most trifling details on business with the manner characteristic of the gentleman; and I have not only the pleasure of recording this, but also that the same feeling of respect and admiration for the Major was entertained by every Master of a ship at Hyder Pacha.

It occupied ten days—employed as opportunity offered, when wind and sea permitted—to land stores, when on the 22nd of February the early part of the day was perfectly calm, with a clear sky overhead and a hot sun. Towards noon a heavy swell began to tumble in from the Sea of Marmora, and a bank of dense clouds with the edge clear and well defined was observed rising in the S.W. quarter. The afternoon continued calm, but the swell rolled in without abatement. At eight in the evening it was still calm and clear, but a loud noise was heard seaward like that of a great rushing of water. The sound seemed as if it was gradually approaching until, through the darkness, the sea was seen to be rolling and breaking terribly in its approach to the shore, and at the same time the noise became almost deafening. The hands were turned up to let go the second anchor; which had scarcely been accomplished before the sea had reached the ship and, like breakers, made almost a clean breach over her fore and aft.

At this time there was but very little wind accompanying the sea, but in an hour afterwards, or about 10h. 30m. p.m., it blew a hard gale and we had veered to eighty fathoms on the small and forty-five on the best bower, the ship plunging heavily. At midnight the gale had increased almost to a hurricane, the sea running tremendously high and making a complete breach over the ship fore and aft. We had veered to a hundred fathoms on the small bower and sixty-five on the best. Expecting every moment that the windlass would snap in two from the tremendous strain on it, caused by pitching, we shored it to the nightheads and otherwise secured it; and although the topgallant yards and masts, with mizen topmast, had been sent down on deck, we were fearful every moment the ship would part her chains, owing to the violent surges she was taking.

I do not recollect ever having been at anchor before in such a sea as rolled in on us this night from the Sea of Marmora. The bight of

the chain cables was frequently nearly catching the end of the jib-boom, and this partly rigged in. The *George Rogers*, riding to windward, appeared to have dragged down towards us, and a little more than a cable's length astern the sea was breaking with fearful violence on the shore. Thus, anticipating every moment that we should drive or part our anchors, we had to pass a very anxious night.

At 4h. a.m. on the 23rd, the gale moderated and the sea was less violent. As the day dawned, though the gale had considerably subsided, the shore, as far as the entrance to the Bosphorus, presented a wild and angry appearance. The fine wharf at Scutari, on which a quantity of stores had been landed the previous day from an American bark, had been shaken, the sea making a complete breach over some of the goods which could not be removed; and the American ship from which they had been landed was driven ashore from her anchors and lay a complete wreck, with fore and main masts gone by the board. Nothing but the superiority of our ground tackle had saved us from sharing the same fate. As the day advanced the gale continued gradually to abate, and by noon it had become a moderate breeze with fine weather, and at 2h. p.m. we shortened in cable and hove up the best bower anchor.

From the 23rd of February to the 29th, the weather continued changeable and unsettled. We continued landing cargo when weather permitted and as required. On this date we learnt the important news of an armistice being agreed to for a month, and that negociations for peace had been determined on. Speculation was rife on the probable result of this measure, and as time wore on the probability of peace began to gain ground.

Nothing worthy of note transpired until the 6th of March, when, at six o'clock on the morning of that day another strong gale set in from the S.W. with a heavy sea, in which we had to let go a second anchor, and to veer out 95 fathoms of cable on the small bower, and 45 on the best. At 10h. a.m., the wind blowing hard, a Greek brig at anchor near us was observed to drive from her anchors, and was soon among the breakers, the sea making a complete breach over her. She soon fell broadside on to the shore, and the crew were seen to get a boat under the vessel's lee and abandon the ship, which became a wreck. A female passenger with a child, who had refused to risk the passage on shore in the boat, was heartlessly left on board by the crew. The vessel having been thrown nearer to the shore by every surge of the sea, the unfortunate woman was observed by some British soldiers, who had assembled on the shore. To render assistance in distress is the first impulse of our countrymen anywhere, and some cavalry gallantly plunged through the surf on horseback, and rescued the poor woman and child from being drowned. They were happily landed in safety from the wreck.

The gale continued hard, with a heavy sea, the ship plunging deeply until noon, when it began to moderate, and by sun-down it had fallen to a gentle breeze.

8th.—We had a change of wind from the N.E., and for the first

time since our arrival at Constantinople the air began to produce on us a conviction that it was winter. A great fall in the thermometer had taken place, and the hills around were topped with snow. The down current of the Bosphorus, that had been for a long time slack, now began to run with great velocity, indicating that N.E. gales in the Black Sea were pressing the water into the Sea of Marmora. The craft employed in landing goods often missed the ship, and could not regain her till the following day. On trying the current we found it for several days running at the rate of three knots along the Scutari shore, where it is in general the slackest.

15th.—The wind continued from N.E., and we found the winter to have fairly set in at Constantinople. The ground was now partially covered with snow, and the beauty of the country around was spoiled by its wintry aspect. We, however, rode snugly in smooth water, with the wind in the N.E. quarter being completely sheltered by the Asiatic shore.

20th.—The sea having been of late so smooth, and the landing easy, we had now nearly completed the delivery of our stores for Hyder Pacha, and the news of the day in Scutari was, that the progress of the Conference at Paris was tending towards a peace, so that in all probability we should soon have to steer homeward. Many in Scutari were anxiously looking forward to see their homes again; others, who had but lately come out, were of a different mind, and only thirsting for glory and the opportunity of distinguishing themselves. The mighty question of peace or war, on which every one's thought were then turned, was soon however to be solved.

At 7h. a.m. of the 31st, the roar of cannon rolling through the Bosphorus, announced that the dove had returned to the ark with the olive-branch, and that the waters of strife had subsided. The hopes and fears of all were set at rest, the treaty of peace had been signed at Paris at midnight on the 30th, and with lightning speed became known at Constantinople. A steamer was despatched and already on her way to the Crimea with this welcome intelligence. We had now completed the delivery of the stores at Hyder Pacha, and with many others were discharged from the transport service.

Remaining at Scutari until April, we were entertained with horse-racing and a foot race; and the crews of the *Queen* (Admiral's ship) and *St. Jean d'Acre* being treated to a lark on shore, amused themselves and their company by climbing up greasy poles for the prizes at the ends of them. A grand review of the British troops also took place in the valley of Hyder Pacha, which the Sultan honoured with his presence.

On the 19th of April, having got the ship ballasted, we left Hyder Pacha, and without regret bade adieu to Constantinople. While we were there all that we can say is, that a continuous stream of imposition was running against us,—having found that we were almost constantly being cheated in weight and measure by a colony of Greeks, Jews, and Armenians, forming a set of the most unprincipled rascals on the face of the earth. Even in changing a sovereign a handful of

some sort of rubbish in the shape of coin was returned, which no one could make head or tail of except that it convinced us we never had the value of our good sterling gold. These were no pleasing reminiscences of that same Hyder Pacha, and Constantinople with all its boasted splendour that was now fast receding from our visible horizon as we steered our course homeward.

Extracts from the Journal of Capt. M. S. Nolloth, H.M.S. "Frolic."—*St. Augustine Bay, Quillimane, &c.*

(Continued from page 12.)

Returning to the ship on the 5th, the morning after our arrival, we made sail to the Northward; but by the 9th, a strong South-Westerly set (on one occasion of 64 miles in the twenty-four hours) had carried us 90 miles to the Southward of Quillimane. On increasing our distance from the African shore, a moderate set to the N.W. was found; and we arrived at Johanna, one of the Comoro Islands, on the 19th of October.

Here I was surprised at seeing a number of tatooed Negro youths of both sexes in the streets—many of them being mere children. The few concerning whom I could obtain any distinct account, had been kidnapped at Anghoza, or on the N.W. coast of Madagascar, by the Arabs of Johanna, whose small vessels, or *dhows*, are generally manned by slaves. These slaves are sold one by one, or else exchanged for others, at the various places visited in the course of ordinary traffic, whenever a small profit can be realized by the transaction,—fresh hands being shipped whenever it can be done with advantage and without risk of detection.

Kaffirs (as the Africans appear to be called throughout the Mozambique by the Arabs) are conveyed to Tullear Bay and other parts of the West coast of Madagascar, where they are usually exchanged for tortoise-shell, bees'wax, sandal-wood, &c. When a sufficiency of these articles cannot be obtained, an exchange of slaves takes place, at the rate of one Kaffir for two, and sometimes three, natives,—the tribes who are enslaved on the island being considered by the Ovahs (the dominant race) inferior to the Africans, and of course more likely to desert and rejoin their people.

The late Sultan Selim died about two months before our arrival at Johanna, and his nephew Abdullah, aged twenty, had succeeded him. The late Chief was much respected,—had governed with more than Arab energy, and had managed to preserve tranquillity during his rule. But at the time of our visit troubles were apprehended, chiefly from the neighbouring island of Mohilla, to which several Arabs of influence had resorted on being banished from Johanna by Selim. This Selim had deposed his predecessor, [illegible] Queen had marri[illegible] an adventurer—

an Arab Chief from the main—who had caused the prohibition of all intercourse with the Johannese, to prevent all competition in cottons, &c, obtained by them from American whalers, with his own individual trade in similar articles obtained by his dowhs at Zanzibar. I was informed by some of the principal Johanna Arabs that the Mohilla people were naturally much discontented at this monopoly enjoyed by the *parvenu* stranger, at the expense of all but a few of his immediate followers,—a lawless set, who had threatened to invade Johanna with their slaves. A few days before our arrival a great alarm had been caused by some dhows having anchored on the opposite side of the island, the supposition being that they were invaders from Mohilla: our arrival under these circumstances gave general satisfaction, and I was induced to postpone our departure for a few days. The only preparation to repel hostilities which I could discover, was an attempt to erect an enormous flag-staff on the remains of a fort commanding the town; but from this, with its new flaming red flag, great results seemed to be anticipated, and I sent the boatswain with a few hands to assist in the undertaking.

The value of the exports and imports of the Comoro Islands is estimated at something less than £10,000 a year. Coffee, for which the soil is said to be well adapted, has been but recently cultivated, and a considerable space at Johanna has been lately cleared for plantation. The example of French industry at Mayotte, where sugar plantations are prosperous, and at Lamoo, where much simsim is raised, having stimulated the indolent natives to exertion.

The population of Johanna is supposed to be about 12,000, of whom a very large proportion are slaves. The ship-arrivals in the year are about fifty or sixty, principally American whalers, whose fishing-grounds are,—the Zanzibar ground, various parts of the Mozambique Channel, especially near Port Dauphin, the coasts of Arabia, Ceylon, &c.

We had reached the anchorage by rounding the N.E. point of the island, (instead of by the N.W. as recommended by Horsburgh,) in order to avoid the passage by night between Johanna and Mohilla, with its uncertain currents and the chance of calms with no anchoring ground. We were considered fortunate in having done so, as at this time of the year vessels are frequently becalmed and swept away by a strong westerly current in endeavouring to fetch the anchorage by way of Saddle Island. This was in some measure confirmed by the arrival of a French vessel of war, whose Commander informed me that he had been close to Saddle Island six days previously, when, being caught by a strong westerly set in a light wind, without anchoring-ground, he had been carried away, and had only then arrived after having made the complete tour of Mohilla.

We were standing towards the anchorage, described by Horsburgh as near Brown's Gardens and three or four miles Westward of the town, when we were boarded by a native, who directed us to that used by vessels of war and most merchant ships, and about three quarters of a mile only to the West of it. This is the only anchorage

now recognised, the name of Brown's Gardens being unknown, and is abreast of a cocoa-nut plantation in the first plain formed by the receding of the high cliffs, which, rising precipitously from the beach, extend Westward from the town.

As there is little to indicate the anchorage to a stranger, and as the great depth which prevents anchoring till near the shore renders a conspicuous mark when standing in desirable, (especially as a guard for vessels arriving at near high water against taking up a berth too near an extensive level coral flat, which is then covered,) the Sultan promised to erect a stone beacon, 14 feet high, on the beach, and to keep it whitewashed. From this, in a N.N.W. (compass) direction, the soundings deepen regularly from the shore to about 20 fathoms, increasing afterwards by 3 or 4 fathoms at once to about 42 fathoms at about half a mile from it. Beyond this, the depth increases to 350 fathoms, soft black mud, at one mile from the spot which I chose for the beacon. The bottom is dark sand, with pieces of shell and coral near the shore, and finer as the depth increases. The beacon will be about midway between two streams of water, not always distinguishable from the ship, and about 300 yards apart. The bearing given will keep a vessel clear, to the Westward, of the above-mentioned level coral flat, which, commencing at the beach a little Eastward of the Easternmost stream, terminates at a short distance from a large isolated building Westward of the town, extending seaward in some places to 400 or 500 yards from the shore. This flat is generally covered, but is quite dry at low water spring tides: the *Frolic* anchored too near to it, and had uneven rocky bottom.

There are several anchorages in the bay, one of which—probably the original Brown's Gardens—is said to be the safest at all times of the year. It also is abreast of a cocoa-nut plantation, and a stream of good water is at hand; but being at an inconvenient distance Westward from the town, it is now seldom visited. I was informed by an inhabitant that in the preceding seven years, during which Johanna had been visited at all seasons, no other accidents had occurred than one or two vessels having dragged into deep water in strong gusts from the land, from having anchored too far outside: the rise of the bottom towards the beach must contribute to the fastness of the holding-ground, and in the swell which the N.W. monsoon sometimes sends in on the shore, the under-tow is said to be considerable. It appears that heavy winds seldom blow home to the island, and that frequently the only indication of a very strong breeze outside, is a surf on the beach, which prevents the landing of goods except by rafting.

Two good anchorages for vessels of any size are said to be on the South side of the island; but hitherto they have been only resorted to by dhows and a few whalers, and have not been properly examined. The Eastern one, in about 10 fathoms sand, is between one and two miles from the shore: there is a stream of good water, but the landing is not good, shoal water extending a considerable distance out.

The Westernmost of these anchorages is outside of a reef about five or six miles to the Eastward of S.W. Point. It has 14 fathoms about

a quarter of a mile from the reef, and is a mile from the shore. A passage through the reef leads into a bay affording perfectly secure shelter for very small vessels in all winds. The landing is good: there is a convenient stream of fresh water, and the village of Shrovi, in the district of Pomoni, affords good supplies of provisions. But this Pomoni must not be confounded with Demony on the East coast, off which is a dangerous reef, on which one of our frigates was lost near the beginning of the century. As anchoring-ground is so scarce around the island, and calms so frequent, and currents so strong, these spots, if correctly described, might occasionally prove useful to our cruizers, and others finding themselves in the neighborhood. From the mountainous character of the island, travelling and the conveyance of produce from the South side, (which is the most level and best cultivated part of it,) are very laborious, rendering a good anchorage on the opposite coast very desirable, and I regretted that circumstances did not permit my examination for it.

According to invariable practice towards English vessels of war, the Sultan sent us a fat bullock on our arrival. We saluted him on his visiting the vessel, and an invitation to dine with him and his chief officials on the following day was accepted. I was privately informed that he intended to get up a good "durbar."

On my arrival, accompanied by several of the *Frolic's* officers, at a large house belonging to the Sultan's uncle, we were conducted to a spacious room, where, on a long table, with faultlessly white linen, a very tolerable attempt at a dinner *à l'anglaise* had been made. Excepting a few uncouth-looking gaudily coloured central articles, no doubt considered *chefs d'œuvres* of the crockery art, nothing that was not familiar to the European eye presented itself, and knives and forks—for us unbelievers—were in abundance. We were received by about twenty official persons, handsomely dressed in turbans, flowing robes, and gaily embroidered vests, with tastefully embossed weapons in their belts, and placing us by ourselves at the upper end of the table, they took their seats together below. Casting my eye upward, I caught a glimpse of several ladies, who, from behind a latticed balustrade, were peeping at the guests, but who on my discovery made a hasty retreat.

In a few minutes the young Sultan arrived, seated himself by my side at the head of the table, and apologizing for having kept us so long, informed me that he was at his three o'clock prayers when we passed his residence, where he would have entertained us had not his uncle's house afforded better accommodation for the occasion. He spoke English very imperfectly, and the conversation—which I fear was not very edifying on either side—was chiefly carried on through the Arab who had piloted us to the anchorage—a sprightly, knowing, Gil Blas-like looking fellow, who called himself the "King Pussah," (King's purser,) and appeared to be the *homme d'affaires* for the whole island. He afterwards gave me to understand that to his intimate knowledge of the ways of Frankestan, we were indebted for the entertainment having been brought to so satisfactory a conclusion.

I may mention, *en passant*, that I had met this worthy Mussulman

at Calcutta in 1841, when, with other dignitaries of Johanna, he had accompanied an ex-Sultan (who had been deposed by his uncle the late Selim) for the purpose of requesting assistance,—first from the Governor of Mauritius and afterwards from the Indian Government. We had some friendly badinage over our recollection of the *distingué* appearance of himself and the rest of the illustrious party on a grand occasion at the palace, in the presence of Lord Auckland the Governor-General, Dost Mahomed, the grandsons, or great-grandsons, of Tippoo Saib, and many other European and Asiatic magnates. He brought to my recollection a little incident which we had witnessed on the occason. The Dost played at chess with the Hon. Miss Eden, who, among her many accomplishments, was an adept at the royal game. In a very few minutes the contest was at an end, and perhaps the occidental lookers-on—I confess to the weakness myself—felt a little secret satisfaction at seeing the Napoleon of the East (then a prisoner at Calcutta) again defeated by the British. The pieces were rearranged, and in as short a period as the first the second game terminated, but with a different result,—when, with a slight bow to his fair opponent, as he placed the board aside, the Dost made it clear that to his gallantry, and not to his inferior skill, she had previously owed her victory.

The name of my ancient friend is Sidi Derrahhaman. He is a very useful character: politics and clothes-washing, pilotage and mess-supplies are all in his vocation, and he is decidedly clever, but not to be implicitly trusted. The Sultan had desired him to furnish my steward with 200 eggs: the present was brought on board at the moment of tripping anchor with many warm expressions of kindly feeling from my friend, who no doubt sincerely regretted our departure and the loss of our patronage: on the following day, at sea, it was found that every one of these eggs was rotten.

In former days care was taken by us to cultivate a friendly feeling with the Johannese, who treated with great hospitality the crews of vessels wrecked when taking the inner passage to India, at a time when a cruel fate was sure to attend the unfortunate mariners who fell into the hands of the natives on either side of the Mozambique Channel. Many, perhaps most, of the Arabs speak broken English. All labour on the island seems to be performed by slaves. The mosques appeared to be well attended.

From the bay, and probably from other points of view, the island of Johanna, which is about eighty miles in circumference and, like the others of the Comoro group, evidently of volcanic origin, presents a remarkable appearance. It consists of a series of conical insulated-looking hills which, rising with little apparent connection one above the other, remind one of the school boy's *Comparative View of the Mountains of the World*, the highest peak 5,900 feet above the level of the sea—the Dhawalagiri of Johanna—crowning the whole.

On the 27th October we left for Zanzibar Island, and on about a direct course for it experienced a N.W. set of between 30 and 40 miles daily, till near Latham Island, when in one day we were carried N.

37° W. fifty-three miles, and at daylight on the following morning found that, notwithstanding a considerable allowance for current, we had been swept past the South end of Zanzibar, between which and the main, as the better and more direct passage, I had intended to proceed to the anchorage.

Between the 2nd and 6th November, owing to light variable winds, with the continued strong northerly set, and no bottom with the deep-sea lead, we had much difficulty in keeping clear of the steep-sided coral reef which fringes the South extreme of Pemba Island,—dropping down on more than one occasion to an unpleasant proximity. But on the evening of the latter day, after several long moonless nights of short tacks, with anxious look-out and listening for the sight, or sound, of the reef-bound shores of Pemba on the one hand, or Zanzibar on the other, a commanding breeze sprung up, and abandoning all idea of recovering our lost ground to the Southward, we stretched away on the port tack, and, weathering the reefs of Pemba, passed between them and the North end of Zanzibar: here we fell in with a southerly set, which proved to be the flood of a regular ebb and flow, and a few hours after dark we anchored in twenty-two fathoms, about three quarters of a mile from the West side of Tumbat Island. On the following day we tripped our anchor and, crossing the Tumbat Shoal, got two casts of 5½ fathoms and one of 7 fathoms, the least depth in Owen's plan being one of 9 fathoms.

We reached the anchorage off Zanzibar town on the 9th, having anchored in English Pass the preceding night.

(To be continued.)

The Pacific Ocean Considered with Reference to the Wants of Seamen.

(Continued from vol. xxv., p. 678.)

In the winter months, as before said, the wind varies between N.E. and N.W. about Cape Corrientes and Cape San Lucar, but not always attended with fine weather as in higher latitudes. Northerly winds generally prevail in November. Sometimes, however, at the end of September and October, off these headlands the wind is found between N.N.E. and N.N.W., changing to West as the coast is approached, bringing rain and squalls.

Prevailing Winds on the Coast of Upper California.—On the coast of Upper California South of Cape Mendocino, N.W. winds prevail without intermission during the summer, that is from May to November. In November, S.W. winds, varying to S.E., prevail, accompanied with rain, but when they veer to N.W. the weather becomes fine. In the month of October, on this coast, a dry scorching East

wind, of no long duration, occurs sometimes, resembling the sirocco. In March and April the wind is variable, and in winter, as well as in summer, fogs are very frequent on this coast.

North of Cape Mendocino, according to Vancouver and the Spanish navigators, the weather is generally bad and stormy, and subject to heavy squalls from S.E. South of this cape the wind is generally moderate and the weather fine. In the winter Krusenstern says that southerly winds are generally moderate near this cape.

Alternate Land and Sea Breezes on the Coast of Upper California.—On some parts of the coast of Upper California near Monterey, and between this place and the parallel of 30° N. lat., alternate land and sea breezes are found. The land breeze blows at night from East, varying from N.N.E. to S.S.E.; the sea breeze lasts during the day, blowing lightly from N.W. to N.N.W.

Prevailing Winds on the N.W. Coast of America.—On the N.W. coast of America, from Cape Mendocino to Cooks Gulf, in 60° N. lat., the winds are variable. Most navigators, however, agree that the prevailing winds are West, varying from S.W. to N.W., with foggy weather. In general the weather is fine with the wind at N.W., and becomes cloudy and rainy when it changes to S.W. During the summer, from Cape Mendocino to 57° N. lat., near the coast the prevailing winds are from N.N.W. to N.W., sometimes interrupted by light S.W. winds, producing fog and rain. Should the wind haul from West to South and continue to shift Eastward, it is generally the forerunner of a storm, and the return of the wind to West brings fine weather.

North of Cape Mendocino, during winter and spring, S.W. winds prevail, and with some force.

The preceding observations on the winds of the coast of Central America, between Cape San Francisco and Cooks Gulf, agree closely with those of Lieut. Wood, Commander of H.M.S. *Pandora*, who was four years in the Pacific Ocean, principally on this part of the coast. It may be as well to give these as we find them from Lieut. Wood, that they may be compared with the preceding. Besides, they form a complete view of the winds of the central and N.W. coasts of America:—

"On the coast comprised between the River Guayaquil and Point Guascames, during the whole year the wind is chiefly from South to West. The exceptions are not many and are only found during the fine season. In two cases, when sailing in a southerly direction near this coast, the first time in May and June, and afterwards in October, November, and January, we have met with winds varying from S.S.E. to W.b.S., with a current setting N.E. The only difference we observed was that the winds were lighter and the weather finer in May and June in proportion as we advanced South, while the contrary was the case in October, November, and January.

"After entering the Bay of Choco, the southern point of which is Guascames, the winds were more variable; however, during the time we were there (from the end of January to the middle of March) they

were never strong, although the weather was often uncertain and it often rained heavily. The S.W. were the prevailing winds and those from N.W. very rare.

"After passing Point Chirambira, the northern point of the Bay of Choco, the wind veered more to the North, and towards the end of March, we were obliged to beat against strong N.W. and N.E. winds as we approached the bay to reach the Bay of Panama.

"On this latter part of the coast, in January, 1848, the winds were more variable. Heavy rains generally accompanied their change when they veered to S.W., from which quarter they were once or twice very strong.

"Between the South point of the Gulf of San Miguel and the Gulf Dulee, including the Bay of Panama and the coast of Veragua, the winds are dependent on the seasons. Towards the end of December northerly winds set in. They are pretty strong, but with no rain, generally beginning in the afternoon and lasting till midnight, and very fresh from N.N.E. to N.N.W. With these winds the weather is perfectly clear, the sky cloudless, the air so dry and rarefied that objects on the horizon are altered or lowered, and the same effects are observed as on the European coasts with an easterly wind.

"Although these winds generally blow so strong as to oblige ships to double-reef, they are sometimes much more violent, especially off the coast of Veragua, where in January and February they blow so severely as to oblige them to close-reef. And in the midst of their strength sometimes they drop and a dead calm ensues at from ten to fifteen miles from the coast. The only indication we have of the wind existing a little way off the ship is the agitation of the sea, which rises in short deep waves, dashing over the deck and causing the ship much violent and uneasy motion.

"Towards the end of March or middle of April these northerly winds begin to fail, and are followed by calms and alternate land and sea breezes. Sometimes these calms and winds are interrupted by occasional squalls from S.W. As the month of April advances they become stronger and more frequent, and in the beginning of May the rainy season is generally well established.

"During the greater part of this season the prevailing winds are from South, varying to S.W. They are not very strong in the Bay of Panama but in a westerly direction from Point Mala the gusts of wind from these quarters are frequent and violent and, while they last, produce a very heavy sea.

"From the Gulf of Dulce, proceeding westward, along the coasts of Costa Rica, Guatemala, and Mexico, the winds are found varying with the seasons, although slightly modified by the locality. Thus, for example, wherever northerly winds prevail we find that they blow in an almost perpendicular direction to that of the coast. Thus, as we approach the coast of Nicaragua (which takes a more northerly direction than those just mentioned) in the fine season we find the northerly winds changed into breezes termed *Papagayos*. They blow from N.N.E. to E.N.E. and East. Like the northerly winds, they

are accompanied by fine clear weather. The prevailing winds of this season (the dry season), which lasts from January to April, vary from S.E. to N.E. From May to November, which is the rainy season, the weather is very bad; subject to squalls from West and S.W., accompanied by violent storms, which are very frequent.

"From the Gulf of Fonseca to the Gulf of Tehuantepec, a part where the coast assumes nearly a W.N.W. direction, we do not meet with northerly winds until we reach this latter gulf, where we again fall in with them, under a different name and with a more violent character.

"Along that portion of the coast where the chain of mountains descends to the shore and in some places forms it, the winds during the fine season (from January to April) are generally alternate, the usual tropical land and sea breezes; the former blowing from N.W., the latter from South, varying to W.S.W. and West. The other months of the year are distinguished by bad stormy weather and winds from the same quarters as on the coasts of Nicaragua, namely from West and S.W.

"The heavy winds across the Isthmus of Tehuantepec are caused by the nature of the country over which they pass. They seem to originate from the northerly winds which blow in the Gulf of Mexico from September to March, and which find a passage between the chains of mountains of Mexico and Guatemala. They are very severe and come from the North, varying to N.N.E., and produce a short heavy sea. They are found still strong some hundreds of miles from the land. In the dry season, when they prevail, (from December to April,) the rigging should be well set up, in order to preserve the masts, and great attention paid to the sails; and with these usual precautions a ship may cross the region where they prevail in safety, according to circumstances, for 200 or 250 miles East or West. If, on the contrary, a vessel is obliged to lay to, an interval—from a day and a half to five or six days—of bad weather, with a short heavy sea, may be expected. These breezes are called *Tehuantepecs*.

"In the rainy season the Tehuantepec ceases to be felt, and at this period (from April to September) the weather becomes very bad, which is the case on all the coast of Mexico. Squalls and heavy winds, varying from S.E. to S.W.b.S., and also violent storms with incessant rain, are always found there at this season.

"The storms are sometimes very heavy and render the navigation on this coast very difficult, as there is hardly a single place of refuge from them to be found.

"During the dry season, on the contrary, no where is weather so uniformly fine and uninterrupted as on this coast of Mexico. The sea breeze commences every day about noon, beginning at S.S.W., varying to W.S.W., and, veering further West, decreases as the sun goes down, falling calm at sunset; after which the calm continues until it is interrupted by the land breeze, which is less regular both in force and direction. These winds and the manner of profiting by them in sailing westward along this coast, have been so well treated of by

Dampier and Basil Hall that nothing remains for me but to confirm their remarks on this head.

"When the coast again trends northward, which is the case near Point Texupan, northerly winds are again found, blowing from the Gulf of California. These winds are very fresh a few miles from the coast during the fine season. A vessel taking advantage of these winds, and of the daily variations in their direction caused by the alternate land and sea breezes, may cross rapidly from Point Texupan to the ports of San Blas or Mazatlan. It is, however, always difficult to work to windward against a lee current and frequent calms.

"From Cape St. Lucas to Cape San Diego the wind is generally between West and North. In the winter, that is from November to April, this coast is exposed to strong breezes from S.E., which a ship must be prepared for when at anchor, most of the bays being open to that quarter. On the North part of this coast they are still more severe, but off Cape St. Lucas are less frequent. They generally give notice of their approach long before they come. The only way to make a passage from any port of this coast to the northward is to stand out to sea on the starboard tack; as the offing is gained the wind will be more from the eastward and thus the zone of the variable winds may be gained, from whence, on the other tack, the ship will gain her destined port. In summer time the only difference in these variables is that there is more westing in them in the mornings, following the course of the sun as the day advances.

"From San Diego to San Francisco the prevailing winds during the whole year are N.W. This coast of Upper California, like that of Lower California, is subject to sudden winds from S.E. They are more frequent and stronger also on the coast of Upper California than on the former. Nearly all the bays and harbours of this coast are also open to these S.E. winds, with the exception of those of San Diego and San Francisco, which are perfectly sheltered from them. In winter time ships should anchor in all others in positions from which they may get under way easily. Thus, on the first appearance of heavy clouds in the S.E. and a swell from the same quarter (the invariable signs of a South-easter), a ship must quickly get under sail. It will be also advisable to have a spring on the cable to cast the ship as most convenient, and a buoy on it in case of being obliged to slip it, should there not be time to heave up the anchor.

"These breezes last from twelve to forty-eight hours, bringing heavy rain with them, which does not cease till the wind changes. This change sometimes takes place suddenly, the wind blowing as hard as before from N.W. for several hours; after which the sky becomes clear and the fine weather is reestablished.

"Off Point Conception these heavy winds are so frequent that it has obtained the name of the Cape Horn of California. The winds here are generally from North to West, blowing strong, especially in winter, and often lasting three days without a single cloud until they moderate. Another peculiar feature of this coast is the existence of frequent thick fogs during one half of the year, rendering the naviga-

tion very difficult to the North of San Diego. The only means of making the land while they last is to verify one's position by the lead, and thus keep tolerably in with the coast during the day, for a very thick fog is frequently found in the offing, while at one or two miles from the land there is a clear horizon and a fine sky. Should this not be the case, when the soundings give notice of being too near the coast, the only way is to stand out to sea and wait for a return of fine weather.

"From San Francisco to Vancouver Island the N.W. are the prevailing winds, and are very constant in June, September, and October. On this coast heavy squalls from all quarters and in all seasons may be expected, especially in winter and at the time of the equinoxes. They generally begin from the S.E. passing southward to S.W. and bringing very rainy weather. After blowing several hours from these quarters, they change abruptly to N.W.b.W., sometimes with no other symptom of this change than an increase of rain. They are then stronger from this quarter than before the change. In the spring the easterly and N.E. winds are more frequent than at any other season; but in the summer the westerly winds prevail, with fine weather. However, at the end of July and August the fogs are so frequent and so dense that sometimes for several weeks together a single clear day is not to be seen."

Such are the observations of Lieut. (now Commander) James Wood on that part of the American coast between Guayaquil and Vancouver Island. We have deemed it advisable to give the whole of this remarkable work (which appeared originally in the *Nautical Magazine)* as it is a complete study of the prevailing winds of this coast, now so important from the extent of its commercial relations.

According to observations made at New Archangel, situated in 57° 3′ N. lat., it appears that the prevailing winds in winter are easterly, accompanied by rain and snow. In the beginning of December there are frequent squalls and tempests, which do not occur during the summer. Towards the end of December the aurora borealis is very frequent.

According to the tables given by Lutké from two years' observations—and where unfortunately we find no notice of the winds—in the port of New Archangel, it appears that during the years 1828 and 1829 there were on the average 170 days calm, 132 days of moderate winds, and 63 of strong winds.

By the same account there is, on an average, 74 days fine, 174 rain or snow falling at intervals, and 117 days rain and snow falling continually.

(To be continued.)

A Visit to Cambodia.—*By a Madras Officer.*

(Concluded from page 37.)

We started at six o'clock the following morning to complete the stage and soon reached it, as it was not very far from our halting place. The distance being so short and our elephants now quite fresh, we passed Oontong Kurweong hoping to be able to reach the second station, but at noon the heat was so intense, and our animals suffered so much from it, that we were obliged to halt again at another half way shed, and remain there till half past three o'clock p.m., when we proceeded on to Bungsuran where we intended to sleep. We arrived at six p.m., not a little fatigued with the very unpleasant motion and cramped position we had remained in for so many hours. After this we made regularly two marches a day, morning and evening, till we reached Campoot or rather Bombai, which we did on the evening of the fourth day after leaving Oodong.

On our arrival at Bombai we at once proceeded to the Governor's house to report our arrival, and to ask for a boat to take us to Campoot, but unfortunately we found the Governor out; so we next went to his son-in-law Chin-choow Choow, and procuring a boat from him, put all our things in, and paddled ourselves down the river. We found everything in our house at Campoot *in statu quo*, and the seals on the doors not broken, a very fair proof of Cambodian honesty.

But we were disappointed in our expectations of seeing the vessel in the roads that was to take us back again to Singapore on our arrival at Campoot, and we had to wait upwards of six weeks before she made her appearance. This delay was very vexatious, as the cargo was ready and we were all pretty well tired of Cambodia, and anxious to get back to a more civilized place. About a fortnight before the vessel arrived, the monsoon set in with heavy rain and constant squalls from the S.W. and West, rendering the loading of ships very difficult, and often really attended with danger, cargo boats now and then being swamped alongside the ship.

The S.W. monsoon generally sets in about the middle of May and lasts till the middle of October, when the N.E. monsoon begins; but this year the S.W. winds set in late, and little rain fell till the end of June. The S.W. monsoon brings the wet season in Cambodia, and the N.E. the dry. The average temperature during the rainy months seems to be in the day time 78° of Fahrenheit and 74° at night. In the latter part of the dry season, in the months of March and April, the heat is very intense, the thermometer averaging 85°, but often rising up as high as 96° in the shade. The climate is, I think, healthy, as I met with many instances of longevity amongst the natives of the country during my stay in it.

I left Campoot on Friday the 21st of July, having gladly availed myself of a passage very kindly offered me by the worthy Commander of the *Polka*, Captain Welch. At 3h. p.m. we got under sail with a

fresh breeze from W.S.W., and at 5h. p.m. the Twins bore S.E. These are two small islets lying to the eastward of the large island of Kuthrall, Kod-dud, or Koh Tron, as it is called in the charts. The Twins can be seen at ten miles distance, being about eighty-six feet in height, and are in lat. 10° 14′ N. and long. 104° 18′ E. At noon the next day the Brother and Sister bore S.½E. distant from the ship about eight miles. These two islands are well wooded and can be seen at about twenty miles in clear weather. The larger island—the Brother—is about 180 feet in height, and is in lat. 9° 48′ N. and long. 104° 10′ E.; the Sister is nearly five miles distant from the Brother, in a S.W.b.W.¾W. direction. The southernmost Omega, another group of small islands, bearing S.S.W. from Koh-dud, lies W.N.W., true, from the Brother, being about twelve miles distant from it. The variation of the compass in this part of the Gulf of Siam is 1° 10′ E.

At daylight on Sunday morning Pulo Panjang bore from the ship W.S.W., and Dammar Island N.E.b.E.; this last is in lat. 9° 40′ N. Pulo Panjang is a large flat island, apparently in the shape of an isosceles triangle, lying in an East and West direction. It is nearly 500 feet high, and is covered with trees. It can be seen at about twenty-five miles distance: the West end of it is in lat. 9° 16′ N., and long. 103° 32′ E. On Thursday at 5.30 a.m. we sighted the great Redang, which bore South about thirty miles, Pulo Lantinga bearing S.W. The great Redang is in about lat. 5° 57′ N., and long. 102° 54′ E. It is very high land, and of considerable extent, thickly wooded, and can be seen forty-five miles, being upwards of 1,200 feet in elevation.

There are four islets lying to the S.S.E. of the great Redang, the Southernmost of which is a barren rock, with a very little stunted vegetation on the top. The islet in this group lying as above nearest the great Redang, is also a barren rock, with not a particle of verdure on it. It is of very singular formation, appearing at a distance like four isolated hummocks; but on nearing it, they are found to be all one island, the hummocks being connected with each other by low ledges of rocks. When the great Redang bears West, this islet is in one with the South end of the large island. Pulo Latinga is about nine miles to the N.W. of the great Redang; it is high land, and can be seen a good way off.

On Friday the 28th, at 6h. a.m., Pulo Capas bore from the ship S.W. ½ S., and Pula Brala S.S.E. The former island, Capas, is about thirty-seven miles N.W. from Brala; it is rather low and of rocky foundation, with a light vegetation on the top. This isle is in about lat. 5° 15′ N., and long. 103° 13′ E. Pulo Brala is a large island, and may be seen about thirty-five miles: it is nearly 700 feet high, and in lat. 4° 47′ N., and long. 103° 37′ E. A small islet, covered with vegetation, with two or three rocks near it, stands about four miles N.N.W. from its northern extremity. There is also another black rock about a mile and a half distant from its southern extremity.

At 9.30 a.m. on Saturday, we passed a junk steering North. From the evening of this day up to Tuesday, the 8th of August, we had most baffling winds, and made hardly any way, light winds, with occa-

sional strong gusts, constantly setting in from South to S.E., with no alternations of land and sea breezes, such as are usually experienced along the coast during this monsoon; a strong current, also, of a little more than two knots an hours, setting to the N.W., added still more to the difficulty of working down to the Southward.

From Tringanu downwards, the scenery wears a very interesting character, the coast having a beautiful appearance, with numerous bold rocky headlands and deep bays, high mountain ranges in the interior, clothed with the richest verdure, and finely wooded, forming a pleasing background to the cocoa-nut groves and sandy beaches of the seashore. This is, moreover, studded here and there with picturesque little villages, embosomed in trees, and mostly situated near the embouchures of small rivers, which fall into these bays. Quite close to the shore the depth of water is great, and it shoals very gradually. Off the River Sidilli, in about lat. 4° 45′ N., long. 103° 20′ E., we approached within a mile and a half of the sandy beach with a depth of 11 fathoms, bottom hard sand. There is a small village on the left bank of the mouth of this river, close under the South side of a bold rocky point. The River Sidilli may be known by the bend of the coast, and the bold projecting rocky point just mentioned as being off its entrance, which is barred with rocks.

On Sunday the 6th, at 10h. a.m., we exchanged signals with a small schooner, the *Young Queen*, steering North, and bound probably to Tringanu; and on Tuesday the 8th, at noon, we fell in with a small schooner-rigged scheotchee, of about 20 coyans burthen, belonging to the Tumongong of Singapore, and bound for that place, having loaded with rice at Tringanu. She reported that two Siamese men-of-war were cruizing about the coast in search of pirates. On Wednesday the 9th, at 7h. p.m., South Cape bore N. ¾ W., entrance of the River Camamam, N.N.W., and Pahang Point, S.b.W.

On Friday morning, at sunrise, we were off the entrance of Pahang River, and fell in with numerous little fishing boats coming out with the land wind. The entrance of the river is in lat. 3° 31′ 30″ N., about twenty-five miles N.W. of Pulo Varela, and may be known by a ridge of trees North of it, and Pahang Point bounding it on the South side. From Pahang to Blair Harbour the coast forms a large bay, and then stretches away nearly S.S.E., being mostly low and woody. At noon of this day, Pulo Varela bore S.b.W. ½ W. This island is rather a small barren rock, about 170 feet in height, with a few stunted bushes crowning its summit. From Varela down to Romania Islands, we had a very tedious passage, only rounding the point on Friday the 8th, and anchoring in Singapore Roads on Saturday at noon, thirty days having elapsed since our departure at Campoot.

In concluding this little narrative of a Visit to Cambodia, it will render it perhaps more complete to add the following account of an event which, but for the good sense of his Siamese Majesty, would have undone all the good that has been so happily effected by the late

treaty. And there can be no doubt that the turn which events have so happily taken will go far to strengthen the good understanding which is now established with the King of Siam.

By a late arrival from Bangkok we have advices giving an account of recent events at that capital, which at one moment threatened the peaceful relations existing between the kingdom of Siam and her Majesty's government. It appears that the repugnance which the Siamese entertain towards the permanent holding of land by foreign residents in the immediate vicinity of the capital, led to the insertion in the treaty of the article setting forth that land could only be bought and perfectly occupied beyond a circuit of four miles from the city walls; but that within that circuit land must be rented, unless special permission was granted to buy it. The longest lease in use among the Siamese is for a period of ten years, which they appear to have supposed would have governed foreigners in their arrangements; but circumstances having induced one of her Majesty's subjects to look out for a more permanent location; a piece of land was easily found, which, in consideration of a good price, was leased to him for a period of ninety-nine years. The lease was drawn out and duly registered at the British Consulate, the money paid over, and the purchaser took possession of the property, no one supposing that anything wrong had been done.

Two months afterwards, the transaction came to the knowledge of the King, who appears to have been much annoyed thereat, and the lessor of the land was arrested and imprisoned together with all his family. Inquiries were then made as to the other participators in the affair, and the drawing up of the lease in such an objectionable shape being proved against one of the parties arrested, the King forthwith ordered that he should receive ninety-nine blows of the rattan in his own presence.

The unfortunate individual had been formerly crier in the King's palace, who recognised him as an old servant; but it appears probable that in the hurry and excitement of the proceedings, none of those present ventured to inform his Majesty that the culprit had been decoyed from the British Consulate, where he had been acting since its establishment as first native assistant.

The beating must have been administered with more than usual severity, as although the man was delivered over to his friends and constantly attended by two of the medical missionaries, nothing could be done to alleviate his agony, and he died on the third day.

The British Consul, Mr. Hillier, was absent from ill-health while this affair was transacting; but he returned at once, and immediately demanded and obtained the release of all the parties imprisoned as accomplices. A strong protest was then addressed to his Majesty, which was signed by the other foreign Consuls at the city, pointing out the breach of the treaty that had been committed, and setting forth the aggravated nature of the case.

With the matter clearly stated to him, the King appears to have

reflected to good purpose on what might be the consequences of his hasty act, and with a frankness that does him much honour, his Majesty at once acknowledged that he now fully comprehended the fault he had committed, for which he was sincerely sorry, and very willing to make any suitable reparation; and after completely exonerating his nobles from any knowledge of or participation in the business, he proposed to present to her Majesty's Government, to be paid for out of his privy purse, a site for the proposed consulate, leaving to his Ministers and the foreign Consuls to adopt such measures as might hereafter remove all existing misunderstandings on the subject of acquiring land.

Prior to the receipt of this satisfactory explanation, Consul Hillier had been obliged, from his low state of health, to return to the bar, so that the report of these events, up to the time of the sending in the protest, will be all that the mail, which left this on the 25th current, will probably convey to her Majesty's Government, and we are therefore happy to be able to add a day's later news, and of a decidedly more conciliatory and pacific character.

The intelligence that the friendly relations existing between the two countries were so soon in danger of being disturbed will doubtless cause much surprise and regret at home, and there are probably many that would avail themselves of the occurrence, if not informed of the prompt reparation offered, to stigmatise as without any foundation the flattering opinion heretofore entertained of his Siamese Majesty's Government. But, in thus candidly acknowledging his error and offering every satisfaction, we are left without anything to complain of; and, much as we regret the death of the party punished, the occurrence will, we trust, remove all present difficulty as regards the quiet and proper acquisition of land, and fully prove the sincerity of the King in his desire for an honourable and correct interpretation of the treaty. The spirit shown in the present case promises well for our future official intercourse, and we hope will confirm the favourable opinion the British Government has been led to form of his Majesty's sound sense and friendly disposition.—*Singapore Free Press.*

How Ships are Lost!

One of the ways in which ships are lost has been recently pointed out in a letter, which, for the sake of keeping an evil before the world until it no longer exists, we have pressed into these pages. The way alluded to, however, is far from being new; but it is so far important now as showing that a condition still exists that should not be allowed when the means of correcting it are within the reach of any one who chooses to lay his hand on them.

6, *Torphichen Street, Edinburgh, Dec. 29th.*

Sir,—I beg to call the attention of shipowners, ship insurers, masters of vessels, map and chart sellers, the Admiralty, the Trinity-house, and the public in general to the following fact:—I went recently from Liverpool to Glasgow by a steam-vessel, of which I enclose the name, but, as I do not wish to prejudice any ship or person, I leave the publication of the name to your editorial judgment. I examined the charts on board, and to my amazement I saw that Corsewell light-house (one of the most important lighthouses in the navigation of the West coast, and the light for Loch Ryan—a refuge often sought by ships in bad weather) was on the chart actually placed on the wrong side of the point of land on which the lighthouse is situated. This statement will appear incredible to many persons, and therefore I give my name and address and the name of the ship. The fact can be easily verified. The Master of the ship was of course acquainted with the fact, and had marked in pencil the true position of the light; but is it not monstruous that charts, and recent charts, should be sold to ships with such a glaring error staring one in the face?

A foreign shipmaster trying to make Loch Ryan with that chart would run his ship dead on shore, and an insurance company would be justified in refusing to pay the damage, on the ground that the ship was improperly found in the requisites of navigation. Corsewell is not far from Portpatrick, where the *Orion* was run upon the rocks and many lives lost; yet here are vessels navigating the same sea with a chart that is so execrably bad that scarcely a name on the Ayrshire coast is spelt correctly, and the soundings are atrociously incorrect.

Although a landsman, I happen to know something of that coast, and I would fain point out another circumstance. Ships are sometimes lost at Girvan and thereabouts. Within my memory several have been cast away there, and, if I mistake not, some indiarubber manufacturer has chosen one of those sad calamities for an illustrative drawing, in which one man is made to reach the shore. Yet on that same shore there is a reef about a mile from the land, within which reef any of those ships could have found shelter, even in the heaviest gale. Yet neither the reef nor the soundings are given on the charts used by the Glasgow and Liverpool steamers.

Will you allow me to point out another want in our coasting navigation? On the East coast of Scotland there is no point so important as St. Abbs Head. All ships making the coast of Scotland for the Firth of Forth would make St. Abbs if they could. All ships driven to the North of the Tyne (some I saw in this condition lately) would make St. Abbs, with its bold shore and deep water—not like the Isle of May, where a ship may be on shore before she knows where she is—yet ships are lost in St. Andrew Bay and elsewhere because there is no light on St. Abbs. Shipmasters in recent times have been punished for losing ships, but is there no punishment for the sellers of charts who sell rubbish that would actually lead a Master to lose his ship? Why not pass a law or an "insurance regulation" that no

chart shall be considered official if it have not the official stamp of the Trinity-house or Admiralty? Is it not an infamous scandal that ships do actually sail with such abominable charts?

I am, Sir, your obedient servant,

P. EDWARD DOVE.

To the Editor of *The Times.*

Mr. Dove has alluded to all the possible consequences that might result from this glaring evil with a surprise that recoils from the discovery (to him) of a state of things which over and over again has been pointed out in the *Nautical* by the Captains of ships themselves. If he will turn no further back than to our last May number he will discover a nest of these errors from the hands of seamen, who are as anxious as he is to see correct charts sold by traders in navigation wares. But as yet we know of no means of preventing this evil. With respect to the errors pointed out by Mr. Dove, until a few years back the coast alluded to was only surveyed by the direction of the Admiralty, and it is quite possible that although the survey of the coast in question have been published since 1849, the steamer to which he alludes might have been navigated by an old uncorrected chart. Long, long ago, in the boyhood of this journal, we remember having experienced the same indignation as Mr. Dove appears to do, but those were days of inexperience, and we know better now, and have grown as wise as we ought then to have been. So, if Mr. Dove has any desire to see other ways in which ships are lost besides this not very prolific one, we beg of him to refer to our volume for 1837, p. 723, and even that for 1843, p. 121, if they should be within his reach, and in the mean time here is another recent illustration of some one or several of the methods there pointed out.

In our last number we inserted the letter of an officer who endeavoured to land a boat on that dangerous reef in the South Atlantic called the Rocas, a few miles to the West of Fernando Noronha, the position of wich is very well known. The signals of distress seen by Captain Reynell of the *True Briton* appear by the correspondence of date to have been those of the unfortunate crew of the brig *E. D.*, of Liverpool, and her wreck affords another good illustration of how ships may be lost by a neglect of the most simple precaution.

PART I.—*The Departure from Port.*

The brig *E. D.*, 273 tons register, left Liverpool August 18th, 1856, for Pernambuco, and arrived there September 24th, making the passage in thirty-five days, leaving again October 29th for Liverpool, with a full cargo, comprising 150 tons of sugar, 1,411 bags of cotton, and a few sundries. At 6h. p.m. the pilot left the ship, and she proceeded on her voyage. On the 30th fine and clear, and light breezes.

PART II.—*The Wreck and Loss of the Vessel.*

31st.—Light breezes, with occasional squalls and dull. At noon

took observation, lat. 4° 44′ S., long. 33° 46′ W., steering N.¾E., going from six to seven knots. At 7h. p.m. ordered all hands on deck to keep a good look-out. At 9h. 30m. p.m. breakers were seen on the weather bow; put the helm hard up, and before the ship wore off she struck with great violence on a reef; backed the sails and tried to get her off; sounded the pumps, and found six feet water in her hold. Ordered the luff tackle blocks to be got out of the forecastle to lift the long-boat out; found it impossible to get down, the forecastle being full of water. Sea, making complete breach over the vessel, washed away the boats and swept the decks; at which time several of the crew were washed overboard, but all regained the vessel with the exception of Antonio Hausen, of Denmark, who was never afterwards seen.

Finding ship breaking up, cut away the mainmast; the foremast went by the board at the same time. The starboard side of the ship then burst out, and port side also parted; then found the decks free as far forward as the after part of the fore hatch. During this time the wreck was striking with tremendous force against the rocks. Being in great danger, having nothing to secure themselves to, all hands prepared to leave the wreck. Captain Wright having secured a box of blue lights, struck them as required, holding them so that we could see the rocks; we then scrambled on to them, and perceiving a large quantity of holes, we made for them, and, with great difficulty, all hands reached them, afterwards proving to be the starboard side of the ship wedged in the rocks; to which we secured ourselves till daylight, the sea breaking over us with great violence.

PART III.—*The Consequences,—in the Death and Sufferings of the Crew.*

At daybreak (Saturday, November 1st), saw two small islands about two miles North of us, also the house attached to part of the deck. Made for it, and, upon searching, found a few stores much damaged: about quarter of a hundredweight ship's bread, half a hundredweight coffee, one dozen case port wine, quarter of a barrel flour, twelve small tins preserved meats, a little Indian corn and calavances, two casks oranges, a few clothes, telescope, and signals.

Instructed all hands to secure everything to the house, which at high water, about 9h. a.m., we got off the rocks and commenced rafting towards the South Island; nothing else of the wreck was to be seen. Got about half way, and, the tide failing, secured the raft to a rock for the night. Being made fast, the Captain addressed the crew regarding their position, and they unanimously agreed to abide by his arrangements. He accordingly served out a glass of wine and about two ounces of bread each, and one tin preserved meats for all hands. Water we had none.

At daylight on Sunday, Nov. 2nd, unmoored the raft, and at 9h. a.m., the tide being favourable, proceeded towards the island. At noon, being as near to the island as we could possibly get for the reef, carried everything on shore. About 2h. p.m., having all secure, served

out a little wine and biscuit. Instructions were then given for all hands to make good search, and secure anything belonging to the wreck or on the island that might be useful. About 6h. p.m. returned, having seen nothing but the bales of cotton, with which the island was strewed. Much anxiety, as no water was found. Then set to work and made a temporary cover for the night, and lay down to sleep, much exhausted from the day's labour and in much pain from the cuts and wounds received at the time of the wreck.

The southern island is about a quarter of a mile in length and about 300 yards in breadth, extending North and South; it is sandy, and nearly covered with a kind of scrubby grass. An immense quantity of birds exist on this island, and were of much service to us. In several places the ground was so completely covered with the eggs and young birds, that with difficulty we could avoid treading on them. They were easily caught, and would not leave their nests at our approach. There are also land crabs, weighing about a pound, with which we were much troubled during the night by their crawling over and biting us. We also managed to catch some fish by means of a sugar bag, placing broken crabs in for bait, and hauling it up when the fish entered, some of considerable size.

At daylight, Monday, 3rd Nov., some hands catching crabs, which we boiled, having previously kindled a fire by the aid of a telescope glass, an oil-can serving as a boiler. Searched the island, but found only a few clothes. Sent two hands over to the other island, which is connected by a reef, distant about a quarter of a mile, who found, to the great joy of all, a cask of fresh water about half full (forty gallons). Succeeded in rolling it over to the South island, which proved the best to live on. At noon killed a few birds and boiled them. Served out half a pint of water each man (day's allowance). Constructed a house out of the cotton bales, pieces of wood, and the tarpaulins which had washed on shore with the main hatch.

Nov. 4th.—Rigged a flagstaff out of topgallant-yard, with an oar lashed on the end, digging a hole, and secured it with guys. We then hoisted the British ensign, union down. Kept a constant look-out for vessels, found a few more clothes and some letters out of the mail-bag; nothing seen, much disheartened.

5th.—Employed rigging flagstaff on the North island, made out of a piece of the deck, with an oar on the end, lashed it to an iron knee attached to a beam on the centre of the island, then hoisted burgee, union jack under. The beam is of considerable bulk, and apparently has been washed up by the sea to its present position; this created some alarm, as we had fear of rollers setting in, and thus leaving us without hope of escape. Two hands keeping fire all night, made out of wood from ours and other wrecks.

6th.—Commenced digging a well in the centre of South island; dug about four feet, sandy ground, we then came to the rock; all suffering much from thirst; thermometer (saved one) 127° Fahrenheit; each man allowed an orange a day—much exhausted. Some went over to that part of the reef where the ship struck. Found a few

clothes, telescope, two marlinspikes, cold chisel, and deck scraper. Could not get any of the spars adrift as we had nothing to cut the gear with.

7th.—Dug at the well, cutting the rock with scraper and cold chisel. Being so intensely hot during the day, worked only morning and evening; dug about one foot,—no water. Found a cask of flour much damaged, and of no service to us.

8th.—Not quite so warm, being overcast; in hopes of rain, continued at the well.

9th.—Smart shower of rain, caught about eight gallons in oilskins and tarpaulins. Being Sunday, no work done. Prayers read morning and evening. All suffering much from their bruises and salt water boils; still keeping bright fire burning; nothing seen.

10th.—Continued at the well, heat very great, several of the crew showed great disinclination to dig, and gave up all hopes of finding water.

11th.—Neglected to dig; in very low spirits, despairing of water, being now eleven days without seeing a sail.

12th.—About 10h. a.m. saw a ship standing to the northward, dipped the flags. After an hour of great anxiety saw her hoist the English ensign and keep close to the wind; made three tacks, but was driven to leeward, a very strong current and tide running to the West. About 5h. p.m. saw a boat beating up to the island. About 6h. saw her keep away, and run back for the ship. Kept a bright fire up all night, in hopes she would beat to windward during the night and take us off in the morning.

13th.—At daylight saw nothing of the ship; much disheartened.

14th.—At daylight saw a vessel to the northward, and passed the lee side within two miles of the island. About 7h. a.m. hoisted Dutch colours, but took no further notice of us; the crew were plainly seen on the deck with the naked eye; repeatedly dipped the flags, but no answer. The last of the ship's bread was consumed this day. Work at the well neglected.

15th.—Worked at the well, but found no water; dreadful sufferings from thirst, many drinking salt water (in one instance urine), those that did so suffering much more agony than the others. Nothing seen.

16th.—Being Sabbath, prayers read, no work done; nothing seen; intensely hot all day.

17th.—Continued at the well; sun very powerful; satisfied thirst by drinking the blood of birds. Two men were discovered stealing the water out of the cask, seven spiles were found in the cask and two ready for use. These two were banished to the other island, still they had the same allowance as the others. Nothimg seen.

18th.—A great many oranges were found to be decayed. Dug at the well; intense heat, and nothing to be seen.

19th.—All suffering dreadfully for want of water and in great agony; unable to continue digging; last of the oranges served out. About 11h. p.m. a slight shower of rain, caught about 1½ gallon.

20th.—Continued digging the well, found no water; gave it up in despair, having dug about 9½ feet. A consultation was held, and it was determined that one half should go to sea on a raft the next spring tides if possible to secure sufficient spars. Went over to the wreck and saved top-gallant-mast and yard broken in two. In great agony from thirst. Nothing to be seen.

21st.—All hands suffering so much, did nothing until four p.m., when, being driven to desperation for want of water, as a last resource commenced with the well again, and were providentially rewarded about seven p.m. by finding water issuing from the rock.

22nd.—All continued at the well with light hearts, and after digging about one foot, found the water filtering in through the rock gradually, and produced about twenty gallons per hour by being constantly baled out, the water never being more than three inches deep. Filled everything with water. No more allowance. Nearly all were very ill, and suffered much from excessive drinking; bread and soup for dinner. About seven a.m. saw a brigantine standing to the Northward, but took no notice of us. The two men who were banished were allowed to return to the island. All thought of proceeding to sea on a raft was abandoned.

23rd.—Prayers, and no work. 24th and 25th.—Nothing seen. 26th.—About six p.m. saw a large ship standing to the Southward, which hoisted American ensign. Passed the island within three miles; hauled up her courses and backed her mainyard, clewed up her royals and mizen topgallant sails. In about a quarter of an hour filled again, and continued on her course, leaving us much disappointed. Kept a bright fire burning all night, in hopes she might tack off and on till morning, and then send boat on shore for us. 27th.—Nothing to be seen of the ship. 28th.—Nothing seen. 29th.—About noon a barque passed about five miles off, standing to the North. Took no notice of us. Still having ensign flying. Killed a large ground shark with an old sword.

30th.—A vessel was seen standing to the Northward, and bearing up to us; all hands went over to the South island, carrying the few clothes we had saved with us, thinking that as she was so close to us she would render us assistance; dipped the ensign, and was answered immediately. As soon as the vessel was abreast of us, sent a boat on shore, which proved to be the boat of the barque *Melbourne*, from Sydney and Pernambuco for London, Mr. A. M. Barnes in charge, who took us off in two trips. We were very kindly and hospitably received by Capt. Robertson, our wants being immediately supplied.

The North island is of an oval shape, extending East and West, about the same size as the South. This is all sand, no scrub at all. Both islands are surrounded by a reef or reefs of rocks, extending about five miles. The islands are strewed with much old timber, and we could distinguish five different vessels. We also found several human skulls, and many bones were scattered about.

The following is the list of the drowned:—Thomas Wm. Clarke, of London, chief mate; William Hughes, of Tenby, second mate;

Henry Hall, of Penzance, carpenter; John Edwin Jones, of Wrexham, steward; Wm. Makepeace and John Agnew, both of Belfast; Juan Rodriguez, a Chilian; Matteo Atourey, of Mexico; and Andrew Paterson, of Sweden, all able-bodied seamen; William Hemmingway, of Liverpool, boy; and Antonio Hausen, of Denmark, able-bodied seaman.

By the time the reader has arrived at the end of the list of lives lost, he will find that, notwithstanding the unhappy crew (at least eleven of them) were looking out for two hours and a half on deck, (by which we may conclude that the Captain anticipated some danger,) they were all doomed to a miserable suffering ending in death from the wreck of their ship! There was an ancient custom among other precautions of our forefathers, of lying by at night, or reducing sail so much as would almost amount to the same thing, and a very excellent precaution it was. But such measures are too slow for these days, and the brig *E. D.* could not be expected to do this, but takes the precaution of setting all hands to look out in the dark for a low sandy islet with an outlying reef that is difficult to be seen in daylight. And this is all the precaution that appears to have been taken by her.

Now here is a vessel scarcely two days from port on her voyage home, and at noon on the day of her wreck she had, by her own account, the Rocas shoal due North of her not more than fifty miles. It does not appear whether she had a chronometer on board, but whether she had or not her real position must have been to the Eastward of where she supposed herself to be, as shown by the well-known *westerly* current which prevails there. But on she goes on a course N. ¾ E., which takes her to those shoals, and which might have been seen by her chart—if indeed they really were laid down on it at all.

Now any discretely managed ship would make allowance for a *possible error in position*, and knowing the set of the current would steer such a course as would, from where she was supposed to be, have ensured her going well clear to leeward of them, until she was to the Northward of their latitude, when she might again have hauled up on her course of N. ¾ E. Had the *E. D.* done this all the miseries that followed would have been avoided. But no. On she goes on her course of N. ¾ E. for the sake we may suppose of weathering them, and there is a look out kept by *all hands!* in the dark, for what can scarcely be seen in the daylight, until 9.30 p.m., when the first intimation that was *understood* of danger being at hand was breakers on the weather bow, and the next, which was pretty quickly after it, was the vessel striking on a reef and getting jammed between the rocks, a critical position enough, which requires the aid of a blue light to discover!! Was ever blue light applied to so unworthy a purpose. But it appears that a box of these articles had been happily preserved to light the crew to their miserable retreat among the rocks, and enable them to discover the difference between them and the ribs of the ship. Were ever blue lights, we say, so degraded as to have

to serve to discover wood from stone,—and then the next consequence of this series of blunders is another long series of sufferings and death.

Well, it is all over now,—perhaps even at the Insurance Office,—and the *E. D.* affords another instance in reference to How British ships are lost!

There is a strange fatality attending the mercantile marine of this country,—but Phœnix-like it rises from its disasters with fresh energies, and flourishes in spite of its bungling management. And yet it must nevertheless excite the observation of other countries, and they no doubt wonder at seeing it as fresh as ever. We have recorded in this work voluntary wrecks as well as those that were involuntary; but it is time that the character of our maritime service was placed beyond suspicion. Whether this vessel has been sacrificed at the shrine of mammon or from sheer stupidity, we hope will be decided some day by the Board of Trade.

The Gulf of Sandalik,—*Coast of Tartary.*

The following information relating to the discovery of Barracouta Bay and Seymour Bay, on the coast of Tartary, not noticed in the Russian charts, is collected from letters and other sources.

On the evening of the 11th of May, in lat. 49° N., long. 140° 19′ E., a fine and capacious bay was discovered by the *Barracouta*. Soon after anchoring, a few natives (Ghiliacks) came off to sell fish, which they were glad to barter for buttons. Some of these natives had buttons with Russian insignia on them, leading the *Barracouta* to infer that Russians had been there not long before. Early next morning, Mr. Freeman, Master of the *Barracouta*, proceeded on shore, and crossing over a field of ice, came on a number of Russian log-houses, ensconced in the shade of some forest-trees. These houses bore evident marks of recent occupation. There were some empty casks in the store-house, marked with the English broad arrow, "Portsmouth, 1852," the contents, &c. In front of the principal house was a flag-staff, with a compass card of April. 1855. In the rear of the houses was a strong platform battery for eight guns. At some distance to the right a similar platform for ten guns, whilst in the anchorage, between the two, with her broadside to the entrance, lay the remains of a large frigate, 200 feet long, anchored in 10 fathoms, burnt down to the ice in which she was embedded.

The scantling of this vessel was stouter than that of either the *Pique*, or *Sybille*, and conjecture assigns her to have been the *Pallas*. Her figure-head, a double eagle, found on the ice, was taken possession of by the *Barracouta*, and much of her rigging, spars, &c., was found stowed away in different places, it being evident that her de-

struction had been an act committed but a short time before. The Ghiliacks, by signs, indicated that the Russians had vacated the place some seven weeks before only. Having made this discovery, the *Barracouta* returned to Cape Lemanon to inform the Commodore, who then proceeded to a further examination of the bay. Leaving her comrades in Barracouta Bay, as it was at once termed, the *Barracouta* proceeded North to Castries Bay, looking into all the bays and inlets *en route*, but found nothing more of Russians either at Castries Bay or on her way to it, and again reached Hakodadi on the 29th; the *Sybille* and *Hornet* arriving there a day or two after her.

The *Hornet* left Shanghae on the 18th of June last with the mails containing the news of the ratification of the treaty of peace, and started for the squadron. She had fine weather while proceeding up the Sea of Japan, but becoming colder every day. A number of Russian and American whalers were met, and on the 1st of July land was sighted close to the bay in which the squadron was lying, and where, some time previously, H.M. steamer *Barracouta* had found the remains of the *Pallas*, a Russian 50 gun frigate. Some difficulty was experienced in making out the entrance, but it was at last found, and having got up steam the *Hornet* stood into the bay, the entrance of which is protected by an island.

The bay is described as being very beautiful, and having a succession of five or six commodious harbours inland. In the first or outer one two French frigates were lying; and in the next the British squadron, consisting of the *Sybille*, *Pique*, and *Barracouta*. The *Hornet* anchored in 4 fathoms, with capital holding ground, and within twenty yards from the shore. The basin in which the squadron lay is nearly half a mile long, and about the same breadth, with deep water everywhere, and completely land-locked. The hills come down to the water's edge, and are clothed to their summits with dense pine and oak forests.

The previous Russian occupation of this place was marked by the foremast of the frigate sticking out of the water, large clearings in the forests, and immense stacks of firewood. A strong battery for nine heavy guns had been thrown up, evidently to cover the entrance to the harbour. It had not been armed, but there was a wharf of timber and a sloping way, made of pieces of the vessel, for dragging up the guns. A graveyard, having between thirty and forty graves, each marked by a Greek cross, ornamented with white shells, was found. There were also the remains of a number of huts neatly built in rows. When the *Barracouta* first visited the harbour it was covered with thick ice.

A few natives belonging to a wandering tribe of Tartars, who had been detained by the Russians to assist them in hunting and fishing, stated that the frigate had been in this harbour for two seasons, that the men were very unhealthy, and that on being frozen in the second

winter they broke up as much of their ship as they could for buildings on shore and firewood, and then set fire to her, when she was burnt to the water's edge and went down. They did not know what had become of the guns, but supposed they must have gone down with her, as none were landed. In March last the survivors left in boats and sledges, which had been sent down from Castries Bay.

The bay was found to abound in salmon, immense numbers of which were caught in seins at the mouth of one of the rivers which fall into the bay. They were of a large size and fine flavour. The *Hornets* tried their luck in fishing, but caught very few fish, which was attributable, it was thought, to the concussion caused by a salute fired in the afternoon by the ships, in honour of the birth of an heir to the French throne, having frightened all the fish into deep water. The reverberation of the salute amongst the hills, is described as having been very fine, the echoes being often repeated after long pauses.

Next day the steamers took the two frigates in tow and left the bay. The squadron proceeded leisurely down the gulf, looking into the different bays. A party from the *Hornet* started with two days' provisions to explore a river running into one of the bays. There was some difficulty in getting over the bar at the mouth; but inside, deep water was found, and the party rowed about seven miles inland, until stopped by the shallowness of the water. The salmon were here found in thousands, and the crew hunted them into the most shallow parts and speared them with boat-hooks. The jungle was extremely dense, and no signs of inhabitants were found. A few reindeer were seen, a number of cattle, and several droves of horses, exceedingly wild. A cow was shot, which, minus the head, heart, and liver, weighed 484 lbs., and afforded a good supply of first-rate meat. Great quantities of fish of all kinds were also caught here.

The *Hornet* then proceeded South to survey the coast between lat. 42° and 45°, and on the 12th of July discovered a bay, which was named Seymour Bay. A number of native huts were found on the beach, inhabited by Chinese engaged in hunting. They had a large pack of fine dogs, which they used for this purpose. The Chinese stated that there was a large village of Tartars on the river that fell into this bay, and a party from the *Hornet* started to visit it. About ten miles up they came upon a few huts inhabited by Tartars, who dispalyed the most intense dread of their visitors, kneeling to each of the party separately. The men and women were very ugly, and nearly all frost-bitten. The huts were well built, and protected by strong pallisades. The Tartars had many skins in their possession, and a number of large dogs. They conducted the party to a considerable village two miles further inland, having a large space of ground around it cleared and cultivated. This was planted with potatoes, which appeared good, but were still unripe; and a small quantity of wheat. The men belonging to this village had evidently been informed of the approach of the party, and had hid themselves, so that only the women and children were visible.

On the 14th the *Hornet* proceeded towards Hakodadi, where she arrived on the afternoon of that day, and found the Admiral there; but as the *Hornet* was immediately ordered to proceed to Shanghae, no opportunity was afforded for seeing the lions of Hakodadi.

Singapore Free Press.

NAUTICAL NOTICES.

REMARKS ON THE COAST OF CAMBODIA,—*From Kampot to Chentabon.*

Ships bound to Siam may adopt the Western channel, which has deeper water than that to the Eastward of Koh Tron, and appears to be safe, the *Pantaloon* having beat through it twice. The banks, however, are very steep to, and great care and attention to the lead is necessary on this account. The flat already mentioned as extending from the river's mouth, lines the whole of the mainland, as far as Tianmoi, or Middle Island, which is just visible from the anchorage in clear weather. Steering out from the anchorage, until the water deepens to 6 fathoms: a ship should then haul up for Rocky Point, the North extreme of Koh Tron. East, a little Northward from this point, is a ridge of 2¼ fathoms, running parallel to the shore of Koh Tron, with 8 and 9 fathoms at its edge, and 6 and 7 fathoms inside. Rocky Island on with the North end of Temple Island, clears this; and the Bank to the Northward will be best avoided by the lead, observing never to go under 5½ fathoms. A reef, visible at low water, also extends a mile and a half from Gumong Kwally or Rocky Point, the North extreme of Koh Dud.

The North end of Temple Island on with a small cone-shaped hill or island between Peaked Island and the Kep mountain, leads clear of this reef, with no ground at 15 fathoms. With the South end of Peaked Island in transit bearing with the cone-shaped hill, the soundings are 5 fathoms close to the end of the reef.

When bound out by the Western Channel, a W.S.W. course, after passing the reef off Rocky Point, leads up to the widest opening through the islands, lying in the entrance of the channel, which are visible from the road of Kampot. The North side of Koh Dud forms a deep bay, into which a vessel may stand with safety, should she have to work through the channel.

Middle Island or Tian Moi, is the leading mark for the mouth of the Western Channel. It is a tolerably large island, of moderate elevation, with a few fishermen's huts on the South side. On the N.W. side there is a small sandy bay, in which a vessel can anchor in 4 fathoms, about a mile off shore, and fill up her fresh water very expeditiously. The watering place is indicated by a clearing in the

forest, made by the crews of native vessels which resort to the spot to procure firewood. A ship's long boat can lie close alongside the beach, and as the watering is only a few paces distant, the casks can be filled with great convenience. There is a small round islet on the West side of Middle Island, which must be approached with caution, as a spit projects from it about a mile to the S.W. The space between Middle Island and the extreme of the mainland, is chiefly occupied by an island of a larger size, called Ta Chi Chow.

The navigable channel lies to the South of Middle Island, between it and a cluster of islets and rocks called Kappan Moi, which lies off the North-West point of Koh Dud. The soundings in midchannel are 23 fathoms, and the cluster of rocks which bounds it to the South appears to be steep to.

There is a group of islands some distance out of the Western entrance, the principal of which is a peaked island, called Tanguallah, in lat. 10° 19′ N., and long. 103° 11′ E. Some dangerous reefs exist in their neighbourhood, but the channel between them and Koh Dod, is safe, with soundings in from 15 to 20 fathoms.

Rong Sam Lem is an island about thirty miles in circumference, with several sandy bays on its outer side. The South point is in lat. 10° 34′ N., and long. 103° 18′ E.

Koh Rong is about twelve miles long, and, like the former, is moderately elevated, and covered with trees. There are two bays on the West coast, in which we saw some white cliffs. The point of land which separates them is in lat. 10° 44′ N., and long. 103° 10′ E. Both islands are uninhabited.

These islands front a deep bay, called Ka Pong Som, at the head of which is a river of considerable size. As the town of Ka Pong Som, which is under the Cambodian government, was said to be two days' journey up the river, we did not visit it. The trade is represented as inconsiderable. Samit, the Western extreme of the bay, is in about lat. 11° 4′ N., and long. 103° 7′ E. It was passed during the night. The island of Koh Samit lies close to the Westward of the point.

Okisoo or Kusrovie Rock, a round islet, about thirty-five feet high, and bare of vegetation, lies to the Westward of Koh Samit, distant about twenty miles. It appears to be steep to, except on the South-East side, from which a small reef projects. We made it in lat. 11° 17′ N., and long. 102° 48′ E., from its bearing and distance from the position of the ship at noon; the distance being estimated from the height at which the surf line was visible. As we were becalmed in this position until night, we had no opportunity of settling the point by cross bearings. This rock is in a transit with Koh Koot, bearing N. 22° W. (true.)

Koh Kong, a large, high island, covered with trees, lies near the coast, to the North-West of Okisso. It is inhabited by a few gambouge collectors and fishermen. The highest and Southernmost of two quoin-shaped hills, which forms a peak, is in lat. 10° 24′ N., and long. 103° 2′ E. The North extreme of the island must not be ap-

proached too closely, as a shoal extends from it, parallel with the coast of the mainland, and is continued to the Northward beyond the mouths of the Koh Kong River. There are three entrances to this river, but the Northernmost is the principal. It may be distinguished by a round hill near the sea, which makes like an island when seen from the offing, and also by the trees on the North bank being much higher than those on other parts of the coast.

When stauding in for the bar the soundings decrease very regularly. We took up our anchorage in 3 fathoms, about four miles off shore, in lat. 11° 32′ N., and long. 102° 56′ E., from which the following bearings were set:—Koh Kong Peak, S. 35° E.; Koh Koot Peak, N. 80° W.; Mouth of the River, N.E.b.E. ½ E. These bearings just put a ship close to the bank which has already been alluded to as extending from Koh Kong along the coast to the North.

There is no town here, the inhabitants being scattered in villages erected along the banks of the river. The principal trader, who is also chief of the place, for there is no regular governor, resides at a village about four hours' pull up the North branch. There is very little trade, the only article exported in considerable quantity, being gambouge, which is sent to Bangkok for sale. It can only be purchased on the spot with Siamese tikals or kops, the people refusing to take goods in barter. The inhabitants appear to be in a state of great poverty, and but little advanced in civilization. The place is under the rule of Siam.

From the Koh Kong River the coast extends about N.N.W., and begins to change its aspect, rising into long ridges of table-land, and numerous peaked hills, over which are seen a distant range of very lofty mountains. The general direction of the ranges appear to be from N.N.W. to S.S.E. There is said to be no settlement on the coast between Kong River and Tung Yai. A chain of islands extends parallel with this part of the coast, the southernmost of which is,—

Koh Koot, a high and level island, well wooded, and without permanent inhabitants. A conical hill, near the South-West extreme of the island, the height of which, by trigonometrical measurement, is about 1,014 feet, is in lat. 11° 36′ N., and long. 102° 34′ E. The soundings between the island and the main are regular, in from 12 to 14 fathoms, decreasing gradually towards the coast.

Koh Chang, which terminates this group to the North, (the intermediate islands being small, and presenting nothing worthy of notice,) consists of a mass of peaked hills, separated by precipitous ravines, a table hill near the middle of the island, upwards of 2,000 feet high, is in lat. 12° 1½′ N., and long. 102° 23′ E. On the North-East part of the island, are some huts, where a sort of coast-guard is stationed.

Tung Yai Point, the extreme of the land which forms the Western boundary to the entrance to the Tung Yai River, has the appearance of a low woody island when first seen from the Southward. It is in lat. 12° 2′ N., and long. 102° 39′ E. The channel into the river is

said to be close round the point, and along the land to the North. We did not visit it as the trade is inconsiderable, and the rice and pepper, which are the chief exports, are carried to Chentabon.

The channel between Koh Chang and the mainland, is much contracted by an extensive bank, which stretches from the mainland half way across the strait, with rocks above water in some parts, and a dangerous ledge, only visible at low water spring tides, on its South-West side. Whilst beating through this channel to the N.W., against a strong head wind, with a considerable sea running, we saw no appearance of breakers; but a native boatman, who was my informant, assured me of its existence, although he could not point out its exact position. He described it as being about the length of a ship. To avoid this ledge it is prudent to tack when the water shoals to 4 fathoms while standing off from the rocky islets which front the East side of Koh Chang. These islets are safe to approach, as the soundings are 4½ to 5 fathoms pretty close to; but the passage between the islets and Koh Chang should not be attempted. Junk Rock Point, at the North-Western entrance of the strait, is in lat. 12° 10′ N. There is a rock, three or four feet above water, off the point to the South of which lies the fairway, with soundings in 6 fathoms. The southernmost of the cluster of islets, close to the Westward of the point, has a reef projecting from it to seaward. When rounding the point, a vessel should be prepared to encounter any sudden gusts of wind, which sometimes blow with great violence for a time. From Junk Rock Point the land trends N.b.W. and N.N.W.

Chentabon River, which may be known by a white cliff on the point which forms the Western side of the river's mouth. This cliff is a good landmark: it is composed of an indurated clay, which has become white, and assumes the appearance of chalk. As the water shoals gradually towards the shore, a ship may anchor to the Southward of the cliff in any depth that is deemed necessary. The following bearings were taken from the anchorage a mile to the South of the cliff, in 3½ fathoms at low water:—Haycock Island, W.b.N., distant one and a half miles; Bar Island, N.E.b.E., one mile; Chentabon Hill, N. 57° E.; Koh Chang, (centre,) S. 37° E. Vessels of light draught can enter the river by the channel between Bar Island and White Cliff Point; but, as it is very narrow, it would be necessary to warp in with a head wind. The inner anchorage is near the fort, in 3 or 4 fathoms. Bar Island has a remarkable rock, on its Eastern side, standing detached.

There are two forts near the mouth of the river; one on a rising ground inside White Cliff Point, and the other on a sandy point on the East bank. The latter has embrasures for forty or fifty guns; but only ten of large calibre and four smaller ones are mounted on the sea face. The wall on the opposite side, which abuts on the river, is giving way, probably from the nature of the foundation. The fort is in lat. 12° 27′ 7″ N., and long. 102° 8′ E. The difference of longitude from Kampot given by the chronometer, places it 4′ further West; but the sudden change of temperature had so altered

the rate of both watches, that comparatively little dependence could be placed on their results. I have, therefore, adopted the longitude, given above, from the bearing and distance of points whose position we had previously ascertained. High water, at the fort, took place at noon on the day of the new moon, and on the two following days it occurred about the same time. Rise and fall, 12 feet. The flood ran nine hours, and during the remaining fifteen the ebb set out with great strength.

The town of Chentabon lies North-East of the fort, by rough bearing, distant nine or ten miles; but the windings of the river nearly double the distance. It consists of a large number of houses, mostly of bambu and attap, erected on the right bank of the river. The governor, who, at the time of our visit, was superintending the construction of a fort below the town, received us well, and made no objection to our visiting Chentabon; but at the same time gave us to understand that Bangkok was the only port open to trade. Our stay was therefore short, and our passage up and down the river having both occurred during the night, I can afford little information concerning the country.

The banks of the river are low, and in the neighbourhood of Chentabon the land is well cultivated. Further inland, the country is undulating, with some hills of considerable height. The inhabitants seemed active and industrious, and, at the time of our visit, were busily employed in getting in the harvest. They showed us much civility and hospitality, and I regret that we had not occasion to spend more time among them. The produce of the surrounding country is sent to Bangkok, cash advances being made by the merchants there to enable the producers to cultivate the ground. Rice was cheap, but not abundant. The weather was exceedingly cool, while the strong North wind prevailed, the thermometer being as low as 65° of Fahrenheit at sunrise.

On the return voyage to Kampot, we passed outside all the islands, the outer line of soundings, in the accompanying sketch, will point out our track. We met with nothing worthy of attention that had not been observed during the previous passage along the coast.

GEO. D. BONNYMAN,
British brig *Pantaloon*.

The present wretched condition of the best chart (which squeezes 60 miles of latitude into something less than 2½ inches) is such, that many names alluded to in the foregoing paper will not even be found in it. But the information which this contains may nevertheless be useful to the navigator; and as the whole coast alluded to is about to fall under the examination of our accomplished Surveyor, Mr. Richards, in command of the *Saracen*, we prefer leaving the navigator to use that of our last December number in conjunction with the foregoing, rather than repeating that to which Mr. Bonnyman refers.—ED.

Particulars of Lights Recently Established.

(Continued from vol. xxv, p. 690.)

Name.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
42. Cp. Hancock, Columbia R	46° 16·6′ N., 124° 2′ W.	F.	230	22	Est. 11th Oct., '56. North side. Tower white, 40 feet. A fog bell stands before it.
43. Weser R. ent. on Hohe Weg Flat	53° 42·8′ N., 8° 14·9′ E., var. in 1856 18° W.	F.	112 m	15	Est. 1st Dec., '56. Seen only bearing from S.E.b.E. round southerly and easterly to North. Bears N.b.E.½E. from outer light-vessel Inner light-vessel removed In same tower a *red* light 44 feet high will be visible from vessels entering the Dwasgat Channel, disappearing when she is to starboard near buoys H and J and when in line with the black W A buoy. At the distance of 7 miles it appears white and is only visible when bearing S.b.E.¾E. round southerly to W.b.N.
44. Weser R. ent. on Wanger-Oog Isl., E. extreme	53° 47·4′ N., 7° 54·2′ E., var., 1856, 18° W.	R.	100 m	12	Est. 1st Oct, '56. On West side of entrance. Interval of revolution, two minutes. E.b.N. 1700 feet from it stands a beacon, the Weser buoy lying between them on that line. E.½S. from it is the outer lightship.
45. Verclut Jersey, St. Catherine	49° 13 3′ N., 2° 1·2′ W.	F.	60 m	7 to 10	Est. 1st Jan., '57. On pier head. White tower. Rise and fall 20 ft. at neap, 36 ft. at springs.
46. Sabine Pass, Gf. of Mexico, on Brant Point	29° 43·9′ N., 93° 50·3′ W., var. 9° E., 1856	Ffl.	84 m	16	Est. about 1st Jan., '57. East side of Pass. Tower white. To cross the bar bring light N.W.b.N. and run in N.W.
,, Aransas Pass, on Low Isl., Texas	27° 54′ N., 97° 3·9′ W., var. 9° E., 1856	F.	60 m	13	Est. about 1st Jan., '57. The bar shifts.
47. Lepso Reef Light-ship, Roald Fiord entrance	62° 35·5′ N., 6° 14·5′ E., var. 21° W., 1856	F.	25	9	Est. 5th Dec., '56. But not lighted between 16th May and 1st August.
48. Cape Hatteras on a beacon on end of Spit			35	7	Est. 15th Dec., '56. Nearly due South from Cape Hatteras Light.
,, Ipswich Harbour, Mass.			15		Est. 10th Dec, '56. Serves for crossing the bar when seen in line with lights in eastern tower. 7½ feet.
49. Kara Burun, Black Sea	41° 19′ N., 28° 40′ E.	Ffl.	302	22	Est. 5th Dec., '56. Interval of darkness 10 seconds, only total beyond 8 miles.
50. Nayat Point, Rhode Isld. Providence River	41° 43·5′ N., 71° 20′ W.	F.	40	11	Est. 25th Dec., '56. Tower white.
,, Off Cornfield Point, Lt-vessel					Est. about 15th Dec., '56. In 7 fathoms. On South side of Long Sand Shoal. South from Cornfield Point.
,, Faulkner Island		Ffl			Est. about 15th Dec., '56. In lieu of present fixed light.
1. Lofoten Isld., Glopen	68° 3′ N., 13° 4·5′ E.	F.	140 m	12	Est. 1st Jan., '57. Lighted from 1st Jan to 14th April Seen when bearing from S.W. round southerly and easterly to N.W.
,, Svino	68° 3′ N., 13° 34·5′ E.	F.	200 m	8 to 10	Est. 1st Jan, '57. *Red.* Seen when bearing from N.W. round southerly to N.E. Lighted 1st Jan. to 14th April.
,, Henningsvaer	var. 16° W. in 1857	Ffl.	120 m	12 to 14	Est 1st Jan., '57. Not lighted between 1st May and 15th August. Flash every third minute. Stands on the Quitvaerden.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.
m Mean level of the sea.

Nautical Surveys and Charts.

The *Sydney Monitor* of the 11th of August last has been transmitted to us with the following remarks pointed out to our notice; and, being among the unprejudiced mariners to whom the writer alludes, we transfer them to our pages, admitting thereby with him the justness of them in a general point of view. At the same time, however, we believe the *Herald* would have picked up her information wherever she could get it, as is usual with all H.M. surveying vessels. Every one admits the desirability of preserving the original names of discoverers, for which abundant reasons are given in the remarks; and by all intelligent navigators it must be regretted that those in the classic ground of Bass Strait have not been so faithfully preserved as they might have been.

In reference to the possessive case in these—as in Kent's Group,—the example of our neighbours the French has been followed of late, although certainly the effect in this case has been apparently, though not really, to deprive the officer after whom they were called of that honour, followed as it is by Deal and Erith; and therefore, rather than have incurred this, the sound of the possessive case might have been preserved with no great harm. There are cases indeed where this is indispensable, for who would call Simon's Bay Simon Bay.

With respect to the hydrographic information that is newly obtained while a survey is in progress, in the shape of reefs, &c., dangerous to navigation, the sooner publicity is given to them the better, and a proper application for it to the authorities would, we have no doubt, immediately obtain it, if the want had not been previously met by their publication.—Ed.

We recently published a notification from the *Government Gazette*, dated Sydney, June 13th, 1856, containing a report from Captain Denham, of H.M.S. *Herald*, of his survey of a reef in the South Pacific on July 2nd, 1855, and a very minute and excellent examination it undoubtedly was. Captain Denham has been long and favourably known for his attainments as a nautical surveyor, and every dependence may unhesitatingly be placed in his surveys.

It has, however, been often suggested to us, and we have taken this instance as a recent illustration, that it would be very advantageous to our colonial shipping if the results of such observations could be made available to them without going through the long and tedious circuit of travelling to the Hydrographical Office of the Admiralty and back again, consuming as this has done nearly a year. Surely there could be no objection, at least we could see none, in Captain Denham or the commander of any other surveying ship, being permitted on his periodical visits to Sydney, to give to this Government the position of any danger he may fall in with, that it might be published without delay. There may be obstacles in the way of furnishing copies of charts of

coasts and islands examined during a cruise; but for these the necessity is not so urgent as in the case of a dangerous reef in mid-ocean.

We also think, with all deference to the great personages who manage these matters, that a little less exclusiveness might be advantageous in aiding the good cause. For instance, a ship with all the appliances which modern science can afford her, with skilful and intelligent officers, with "instructions from the hydrographical office" founded on all the information it possesses of the localities to be visited, is sent to survey and make discoveries in these distant regions. When the ship arrives at her port of rendezvous would there be anything derogatory to "the service" in any way if the commander, through the papers or otherwise, were to state that he was about to traverse a certain space, and requesting any one acquainted therewith to furnish information not generally known? It is well known here that the Pacific has been cruised over by whalers from this port for more than half a century, and much valuable information connected with its navigation might be obtained in Sydney if sought for. We are aware that too frequently the scientific attainments of the whaling masters have been very slender, and therefore their positions of reefs, &c., are not always to be depended on, but they could point out the locality, and the surveying ship could with greater readiness discover and establish the position.

Here again, in illustration, we may refer to the reef noticed at the commencement of this. There is no doubt that it is the one on which the brig *Rapid*, of this port, was lost about the year 1841, and which has ever since been known amongst the Sydney ships as Rapid Reef. Captain Devlin of that ship, a native of Sydney, and a good navigator, described the reef (in his account of his shipwreck published at the time) as "circular, about nine miles in circumference and nearly covered," and made the centre in lat. 21° 40′ S. and long., by the mean of three chronometers, 174° 40′ E. Captain Denham places the centre in lat. 21° 44′ 48″ S., long., by thirteen (!) chronometers, 174° 36′ 55″ E. There can be no doubt that Captain Denham's is the most correct, but there is sufficient similarity in the two accounts to show that there is but one reef, and that if the *Herald* had been supplied with these particulars, as she ought to have been, she might have steered for it without searching over the space she did. The name it has been so long known by might also have been retained, instead of the name of Conway given it by Captain Denham. This is of more moment than would appear at first sight, and we may remark that the alteration of old established names has been very recklessly carried out by the compilers of charts from the last surveys of the coasts of Australia and New Zealand.

It should be borne in mind that though these coasts are a *terra incognita* to English mariners, each part has had for many years a "local habitation and a name" to those of Australia and New Zealand. The latter has been most unsparingly tampered with, many of the well-known names to coasters being in the recently issued charts completely altered. As we before said it may seem of little moment at first sight,

but we will snppose a case of a ship bound to Auckland getting to the entrance of the deep gulf in which it is situated, night coming on and thick weather (by no means infrequent there), the commander sees a coaster and gladly hails him for information of his whereabouts; but to his dismay he finds that the coaster can give him no information of the bearing of an island he is anxious about (not knowing it by that name), but can tell him how one bears, which the perplexed commander cannot find on his newly issued chart.

The survey of the *Beagle* of Bass' Strait, tampered in the same way with well-known names. We may instance a few—A well-known sloping grass covered projection, North of Cape Howe, was well known as Green Cape, and readily distinguished from its appearance. The alteration, simple as it may seem, to Cape Green, totally deprives it of its descriptive power. Kent's Group was called after Mr. W. Kent, Master of H.M.S. *Buffalo* many years ago. The new charts call them Kent Group, as if named after the county, and call the two principal islands Erith and Deal, to aid the delusion. A rock near Wilson's Promontory, with a remarkable cavern in it, was always known to the old coasters as Tiger Rock, and the resemblance to the head and open mouth of that animal, cannot fail to be observed by any one who sees it, but the new chart calls it Cleft Rock, which, while it makes an alteration, robs it of the value of a name descriptive of its appearance.

Did space admit, we could point out numberless instances of the same sort. The chart compilers should remember this— In traversed seas retain the names, especially when they are expressive ones, which are in use amongst those who are navigating them, and in unknown coasts name as you like; but, if possible, adapt your nomenclature to some remarkable feature, so as to aid the stranger in determining the locality by the appearance of the island or point he sees. Cook and Flinders, names honoured by all Australian navigators, set glorious examples of this system, and their Point Perpendicular, Table Cape, Circular Head, Mount Dromedary, Pigeon House, aud a host of others, are worth all the Capes Wellington and Nelson, or the Admiralty Bays that exist in every quarter of the world.

We have thus endeavoured to draw attention to a few circumstances which may hitherto have escaped the notice of those who have the power of guarding against the errors, or adopting the suggestions therein contained. We can hardly hope to see them all attended to, but we feel assured that all unprejudiced mariners will acknowledge the justness of our remarks.—*Sydney Empire.*

Steam-Packet Shipwrecks.

During the fourteen years the Royal Mail Steam-packet Company has been established it has lost eight ships—three in the Gulf of

Mexico, one in the Bay of Biscay, one on the coast of Spain, and the rest in the West Indies. The value of these ships, with the property belonging to the company on board them, was above half a million sterling. This amount is independent of the value of the cargoes and of the private property of the passengers that were on board the ships. The most memorable of these wrecks were those of the *Amazon*, the *Tweed*, the *Forth*, the *Tay*, and the *Solway*. The *Amazon* was destroyed by fire, and all the rest by striking upon rocks or running on shore. Two of the Commanders of the lost steamers perished with them, and those were the Captains of the *Solway* and *Amazon*. With respect to the latter, all the officers except one went down with her. Altogether nearly 300 persons perished in the eight steamers. The loss of the *Amazon* was the most frightful calamity of all. She caught fire in the Bay of Biscay, and raced on with uncontrollable speed, all in flames as she was, the sounds, the conflagration, and the engines, mingling with the shrieks and prayers of the doomed passengers and crew. Human imagination never conceived a more appalling spectacle than this.

The next in its degree of horror was the wreck of the *Tweed*. After about half her crew and passengers had perished, nearly 100 despairing men were huddled together for three days on an almost submerged islet in the Mexican Gulf, which was surrounded and guarded by voracious sharks.

The Peninsular and Oriental Company has also lost several packets; the chief of which were the *Great Liverpool*, the *Tiber*, and the *Pacha*. The *Pacha* was lost by a collision in the Indian Ocean, and the *Great Liverpool* and *Tiber* were destroyed by going ashore on the Peninsular coast. A great loss of life accompanied the destruction of these steamers. The Commander of the *Great Liverpool* committed suicide soon after the wreck of his vessel.

Cunard's Company has, in its turn, lost some steamers; and Croskey's Company has lost two ships. All of them sunk on the other side of the Atlantic; but their loss was unaccompanied by loss of life.

The destruction of the *Arctic* steamer, one of the Collins' line, was attended with scenes of fearful interest. This ship was sunk near the American coast by a collision.

It would be a breach of etiquette and a mark of cowardice for the Commander of a wrecked ship not to be the last to leave it. Shame for the loss of the ship is no doubt sometimes the motive which has induced a Captain to remain on board until the last; but a more common and equally powerful incentive, probably, is his natural love for the ship in which he has often triumphed over the hurricane and ridden upon the raging ocean. The only message which Captain Valler, of the *Tyne*, sent to Southampton was that "he was going to stick to his ship;" and the old skipper of the *Northern Belle* refused at first to be saved, as he had resolved to sink with his vessel. Scores of New York merchants went out to welcome Captain West, of the *Arctic*, because he had "stuck to his ship to the last." Not one of the Captains of the wrecked mail steamers we have mentioned ever

forsook his ship until the last person on board had left it, and in those instances where all could not get away the Commanders perished wtih them.

A great blessing will be the telegraph across the Atlantic in announcing any disaster that may have occurred to an Atlantic mail steamer. When the accidents occurred to the steamers *Atlantic*, *Hermann*, *Amazon*, *Solway*, *Tay*, and *Tweed*, fearful anxiety prevailed in the United States, West Indies, and England, which would have been of short duration if there had then been any means of instantaneous communication between Great Britain and America.

The private property of passengers lost in the mail steamers which have been wrecked must have been of great value. It has been said that the Bank of England pays its expenses by the value of the notes that are issued and never returned. A large portion of such notes are lost in mail packets.

None but those who have lived at some packet port, such as Southampton, can imagine the suffering and anxiety of parents, children, wives, and sisters, related to men and officers on board the mail steamers which run on such hazardous voyages, nor is it easy for a stranger to comprehend the piety and sympathy which such anxiety and suffering evoke. The love which is felt for "those who go down to the deep sea in ships" subdues and refines the heart, and religion has nowhere greater influence than it exercises upon those to whom she offers a prospect of meeting their beloved sailor in a more secure haven than he could find in this world.—*Daily News.*

THE "TYNE."—*Stranding of the Royal Mail Steam-ship Tyne, off St. Alban's Head.*

Great interest was excited in the early part of the month by the report of the grounding, on one of the most dangerous parts of the Dorsetshire coast, of the paddle-wheel steamer *Tyne*, Captain Valler, on her passage to Southampton from the Brazils. Immediately on the receipt of this intelligence Captain Vincent (the Company's Superintendent) got two steam tugs in readiness, with a large number of men, ropes, and everything necessary for such an emergency, and started for the place where the unfortunate ship was grounded, which is between forty and fifty miles from Southampton.

The ship sighted Portland Lights at two o'clock on the morning of the 13th, and about half-past three grounded. The weather was very thick at the time. The ship is lying about half a mile from the shore, on a bed of chalk and gravel, between Chapman Pool and Kimeridge Ledge.

Several of the passengers of the ill-fated steamer arrived at Southampton the same evening. The concussion when the ship struck was very great, and some of them were thrown out of their berths. They

were, of course, in a great state of alarm and confusion, and rushed on deck to see what had occurred. At this time the ship was bumping violently. As the tide rose the ship eased and settled down, and every means were resorted to to get her off, but without avail. After daylight the mails were landed. About noon the boats were lowered from the ship's side, and the passengers were slung into them from the deck, the high tide and heavy sea preventing their getting down into the boats in the ordinary way. During this period one or two of the boats were swamped, and some of the passengers thrown into the water; but they were all saved, but without a single article beyond the clothes they stood in.

She lies stern on to the shore and fast on the rock; her rudder gone, and the stern post started, and the prevailing opinion is that she will not be got off. She was built at Newcastle in 1854, of iron; is of 2,184 tons burthen, and 450 horse-power. She had diamonds on board to the value of £33,746, which have been saved; likewise all the mails with the exception of one small bag. Her cargo consisted of 425 bales of cochineal, 255 barrels of tapioca, and 140 packages of sundries, a large portion of which has been saved, but it is feared much damaged.

The Northern Belle.

Mr. John Lang, of Broadstairs, has communicated to a contemporary a striking account of the circumstances attending the rescue of the crew of the *Northern Belle*, the American ship which drove upon the rocks beneath the cliff at Kingsgate, on Monday night, the 5th of January. At between six and seven o'clock on Tuesday morning, an awful sight was revealed to those on the cliffs and on the beach. "With the naked eye we could discern twenty-three men lashed to the rigging of the only mast left standing. What these poor creatures must have suffered during the night the reader will readily imagine. At half past seven a.m., the lifeboat, the *Mary White*, was manned. Ten brave men pulled through a boiling surf and raging sea, which several times hid them from our sight, and filled us with alarm for their safety. When seven out of the twenty-three men upon the wreck had been got into the lifeboat, it was found necessary to cut her adrift and disentangle her from the ship. With these seven men the boat returned to the shore amid the cheers of the many persons assembled on the beach.

"A second lifeboat, which had also been wheeled from Broadstairs, to be ready in the event of the first lifeboat being lost, was now launched, and went off to the wreck. She succeeded in bringing away fourteen. The two remaining were the captain and the pilot, who had been taken in at Dover. The former declared that he would rather die than leave his vessel, and the latter expressed a desire to

remain and perish in the old man's company. After an hour and a half had elapsed, the lifeboat for the third time left the shore, in order to persuade these two men to save their lives. After much difficulty, the crew of the boat succeeded in inducing them to come off the rigging and go to the land.

"To describe the scene on the beach when it was known that all hands had been saved, is beyond my power. A more affecting scene was seldom witnessed. There were tears of gratitude shed by the Americans, tears of joy and of pride by the Broadstairs boatmen. Benumbed as the shipwrecked men were, they could scarcely partake of the refreshment which was provided for them in the little, warm parlour of 'The Captain Digby,' the solitary inn which stands upon the cliff at Kingsgate. There is a little episode connected with the saving of these men's lives which I am temped to chronicle:—At three o'clock p.m. this day (Tuesday) the *Mary White* was dragged upon her truck by three horses into Broadstairs. In the boat sat her gallant crew. Tied to an American oar was the American standard, which was so recently hoisted as a signal of distress. The tattered flag fluttered over the broken bows of the *Mary White*. It was thus that the boat passed through the streets of Broadstairs, amidst the joyous shouts of the inhabitants of the town."

Nearly all of the brave men who risked their lives to save those of the American seamen, are married men with large families of small children, and there is not a man among them who has not assisted in saving life, and who has not lost a father, brother, or cousin in the same glorious cause.—*Daily News*.

In transferring this account to the *Nautical*, we must not lose the opportunity of saying that the Broadstairs boat was built by Mr. White of Cowes, and is one of the best we know of.

Langstone Harbour.

That Langstone is destined to become the outport of London itself, may, in our opinion, be safely predicted. In one of our last numbers we pointed to the West harbour of Hartlepool, and showed what enterprise and capital had done there—dug indeed out of the soil, with far less advantages in its favour than are possessed by Langstone. But we are glad to see that at a recent meeting at Portsmouth, on the subject of water, some good people there are opening their eyes in reference to Langstone, and foretelling days of its prosperity. The approaching completion of the direct line of rail from London, should be another powerful incentive to immediate measures towards commencing the good work at Langstone. It has been truly observed, that "Portsmouth sees vessels of all nations in her harbour; but those are vessels of war." No doubt,—and Langstone is close to Portsmouth, where a

harbour for vessels of merchandize might, and we have no doubt will hereafter, be made, and thence Portsmouth will benefit indeed:—a series of advantages will be secured to its neighbourhood difficult to calculate, for, as already observed, "numerous shipwrecks will be prevented, numerous lives will be saved, and commerce will receive a very appreciable and enormous advancement." How all this may be effected we must reserve for our next number to show:—but in the mean time we should be glad to see that Portsmouth and its neighbourhood, with their friends and capitalists, were alive to the facts. By the way;—the question has been asked, "What shall we do with our convicts?" What better, it might really be asked, could be done with them than employing them in constructing harbours on our coasts, where nature has encouraged them by its conformation. Many such places might be pointed out, where a hulk, as a lodging for them, (proportioned in size to the work required,) might lie until it was completed, of which places Hayling is one. The more harbours we have the greater our trade must be. It is high time that all consideration for *conflicting interests* and prejudiced opinions, were set aside in these matters; and that a purely *parental* control for the benefit of the country and the general public good, should receive these projects with a friendly hand rather than that they should be defeated by an interested opposition.

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Hydrographic Office, Admiralty, January 22nd, 1857.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MARCH, 1857.

The Sea and its Coast between Boulogne and Denmark.

The portion of coast which is alluded to in the papers that will follow on this subject extends from beyond Calais to the extremity of Jutland. Throughout the whole of this tract the shore presents the same aspect—a strand of very gradual declivity, and consequently bordering a shallow sea, interspersed with shoals. The heights on the coast are more or less elevated, separating the sea from the interior of the land, and without the least vestige of rock. In the interior, and at some distance from these heights, the country is almost entirely flat, a sure indication of a neighbouring sea, and in several places are recent traces of it. Very few trees are seen near the coast, but instead of them is turf, which answers the purpose of fuel.

The South and West coasts—the great district of Aalborg, the northernmost of Jutland—are formed by a ridge of downs, varying from one to four leagues across. Beyond these downs, in the western part, there is a border of swampy land and brushwood. There are also a number of lakes. Almost the whole of the Veud Syssel is formed of a swamp, abounding in small elevations. In the diocese of Aarhus, South of Aalborg, we also find a great deal of turf and brushwood. Timber is not to be found, but here we see the most magnificent prairies, indicating a moist soil, caused doubtless by frequent inundations.

Holstein, the coasts of Hanover, and the southern provinces of the

Netherlands are the same in character, consisting of lakes, marshes—or indications of marshes having previously existed, few trees, and a good deal of bog. "The Netherlands," says M. Coquebert de Monbret, in an article on Holstein, in the *Encyclopædia Methodique and Geographical Dictionary*, "is a vast plain of sand extending from the foot of the Hartz mountains to the sea, a distance of forty or fifty leagues." The whole of this extent of country partakes of the same character. The soil is marshy, from the absence of declivities to carry off the moisture collected during the greater part of the year by the dampness of the climate, which accounts for the boggy ground; some of which has already naturally dried up, and the rest probably will be.

Amstelland is perfectly flat and marshy. It is full of swamps and pastures; and the swamps, after the turf has been taken from them, form bogs and lakes, which can only be drained by means of ditches and mills for draining. The numerous branches of the Rhine, the Meuse, and the Scheldt, lead to the conclusion that the country watered by these rivers is not more elevated. Beyond the Scheldt, as far as Cape Blanez, the same circumstances occur. "We reckon," says the Abbé Mann, "that in French Flanders only there are more than 100,000 acres of land—the richest in all France—which are flooded at high water." The streets of Ostend, according to the same author, are only one foot above the level of high water mark; those of Dunkirk and Gravelines nearly three feet; and those of Calais about five feet above it. The highest parts of the vast and fertile plain of Calais, Dunkirk, and St. Omer, and the environs of Bourbourg scarcely reach the level of the high water neap tides; and the highest land towards Gravelines, Dunkirk, and Furnes is about three feet above this level.

The highest lands of Bas Calaisis are four feet and a half above this level, and those along the river Aa nearly five feet. The low lands of Calais, near Bergues, and some in the old feudal estate of Furnes, near Loo, and the fortress of Knock and Merkham, are eight or nine feet below high water mark. Those near Uxem are one foot lower still. Lastly, the Moeres are thirteen feet below the level of high water.

According to a level taken the 7th May, 1816, the waters of the marshes surrounding the lands near the village of Stalhill, between Ostend and Bruges, were nearly six feet lower than those of the canal, and about eight feet lower than the high water level of spring tides. The surface of the ground is very little above high water mark. The poldres, near Ostend, are rather more elevated, but very slightly, and they do not reach the level of high water neap tides.

The whole of this extent of plain is essentially composed of sandy soil. We have already seen that Lower Germany is formed of this; it is the same with Jutland. The province of Over Yssel, South Brabant, Antwerp, the two Flanders, and the departments in the North, and of Calais in France, present a continuation of the same soil. These plains are bounded towards the interior and at different distances from the sea by undulating ground, more or less elevated, of

a different character; and intersected from time to time by valleys and rivers.

We are only acquainted with three important operations in this territory—at Amsterdam, Dunkirk, and Calais—made with the view of procuring drinkable water in each of these towns, but without success. The well at Amsterdam was commenced the 16th July, 1605, and excavated to the depth of 232 feet. In digging this there was found, according to Des Roches:—vegetable, or garden mould, 7 feet; turf, 9; clay, 9; gravel, 8; earth, 4; white clay, 10; earth, 4; gravel, 10; blue clay, 2; sand (white), 4; dry earth, 5; loose earth, 1; white clay, 14; gravel and clay, 5; gravel, mixed with shells and hair, 4; clay, mixed with hair of animals and marine shells, 36; pure clay, 66; sand and flint, 5; pure sand, 29; total 232 feet.

The excavation made at Dunkirk in 1785 produced an order of strata very different from this. It was formed of a mixture of earth and different kinds of sand, mingled with flint, silex, and other substances, particles of chalk—broken and wasted by friction, also a mass of vegetable debris—such as the trunks of oak, and animal remains—shells, partly in their natural state, found at a depth of 100 feet. All these layers make together 500 feet. Below these begins another order of strata. We no longer find any foreign body, whether mineral, vegetable, or animal. Properly speaking, we only distinguish a single layer 200 feet thick, almost all alike, formed of brown clay, very fine and soft; of which certain petrified portions, hard stones, approaching the nature of silex, and resembling those we see in the clay strata in the coal mines of Hainaut.

The well at Calais was dug in 1821. The strata found there was the following:—earth, 16 feet; quicksand, 118; rich earth or sand, 75; white loam, 167; total 376 feet.

In this maritime basin, along the coasts and rivers there is a layer of white clay, more or less thick and extremely productive, known by the name of marschen in Holstein and Lower Germany; of poldres in the Netherlands; and salines in the North provinces and Calais. Under this bed we nearly always find turf, from three or four to fifteen or sixteen feet thick; beneath it we find blue clay, and afterwards sand. Another remarkable peculiarity is the great quantity of fossil trees found in this basin. We not only find them in the swamps of Lower Germany and the provinces of Frise, Holland, Zealand, and Flanders, but also in the sands of Campine and about Dunkirk.

The almost entirely flat surface of the basin of which we are speaking, the white sand of which it is composed, and the shells we find there, render this basin so similar to the sea which is near it, as to leave no doubt of the sea having formerly covered this portion of the continent.. The fossil remains found there are another proof of its existence. The rivers have swept them to the sea, which has afterwards thrown them up on the coast.

The rivers of America thus carry along a multitude of trees, which interrupt navigation. When Europe was as uncivilised as America, and abounding in woods, our rivers, especially the Rhine and those

flowing through Germany, presented the same appearance. M. Desmarets, considering, as we do, that these fossil trees have been transported by rivers, thinks that they have been conducted there since the seceding of the sea, and during the inundations of the rivers. If this is the case with regard to those trees met with in the low parts of the coast and in the midst of this basin, it is not so with those found in the higher parts, which, as Eyndices observes, have not been exposed to the overflow of rivers. These have evidently been left here when the sea covered the whole country.

We shall not stop to refute the opinion of those who think that these trees have been rooted up and buried by some considerable overflow of the sea, which seems to have been what they term the cimbric deluge. This question has been already considered by several learned men in such a manner as to leave no doubt that this cimbric deluge was only one of those overflows then so common on these coasts.

These irruptions of the sea produced, it is true, great changes, but their effect has not extended beyond the limits of the sandy plain. The cimbric Chersonesus (now Jutland) is about half the size it was in the time of the Romans. The Isles of Frise were formerly attached to the continent. The ruins found on the shore—amongst which the most remarkable are those of the chatteau of Britten, the enlargement of Lake Flevo and its transformation in the Zuyderzee, the formation of the Dollaerh and Lauwerzee, the enlargement of the mouths of the Scheldt, and the formation of new branches, and, lastly, the disappearance of several villages along the coast, all denote that formerly, as well as now, the sea has overcome those dykes which nature or art had opposed to its violence. But let us not exaggerate its effects and give an importance to the cimbric deluge, which, if it was real, no inhabitant of these countries would have survived; and the migration of several hundred thousand people after this inundation would have been impossible.

The nature of the shores along the coast of the basin we are considering sometimes varies. While the coast is low and sandy, and there is no appearance of rocks, from Cape Blanez to Cape Schagen, we find nothing but cliffs and rocks beyond that point. In Boulounais, the rocks are generally calcareous, but in Norway they present a surface of hard granite. The calcareous nature of the former exposes them to the action of the waves, which are constantly changing the form of these coasts.

These changes and those anticipated on a portion of the coasts of this basin we propose to consider: their condition under the Romans as well as their present state; the causes of the changes anticipated on them; the proofs which establish the truth of the causes assigned in the former; the innundations which have taken place on them, and the changes they have produced; and, lastly, the position of some of the ports mentioned by ancient authors.

BELPAIRE.

(To be continued.)

A small island was singled out for our magnetic observations; after which we left the vessel to visit the town of the aspen trees. The pilot insisted on our landing at Salmanante, by which he considered that we should be beyond the range of the Russian guns on the banks of the Tornea, of which he had a most mysterious and very wholesome respect. Having given a wholesale order, the town authorities promptly attended to our demands for vehicles, and we soon found ourselves rattling at a racing pace, over a miserable rutty road, towards the Russian frontier; and in something less than an hour were in the neat little town of Haparanda, with Tornea close at hand, and only separated by a shallow bay.

The first care was to find the Burgomaster, whom we discovered in the shape of a silversmith, and this worthy performed the important functions of his office with all due respect for the relative positions between us. He appeared to be much gratified at British officers having selected his house for their first visit, and his pretty daughter fulfilled the duties of hospitality with the most engaging Swedish simplicity. Soon, however, our advent was made known in the town, and deputations from several houses then arrived with invitations to visit. In the custom house offices we found about twenty or thirty well-dressed gentlemen ready to receive us, and a sharp practice of cold punch and cigars immediately commenced. As the former began to take effect a strong anti-Russian feeling began to eke out, and we soon gained all the information that was to be had concerning the Russian force. The Cossacks had left Tornea more than a fortnight before our arrival, so that we might have marched over and taken possession at once; but a telegraphic message was sent after them immediately we arrived.

The batteries on the river side were mere breast-works for muskets, and there were no other fortifications about the town. The depth of water in the river was not above five feet, and the channel lay on the Russian side. There was, however, no shipping or Government stores, so the information was not of much interest to us. The view from Haparanda is very interesting. Tornea and the banks of the river are very fine, but we had no time to enjoy the contemplation of scenery, for night was drawing in; and therefore, having quite satisfied ourselves in the object of our visit, we retraced our steps, and on regaining the ship we found several persons had been on board and had corroborated all we had heard about the Finnish trade.

Sept. 25th.—It was now clearly my duty to get over on the Finnish coast somewhere between Tornea and Uleaborg; but here the chart was blank and entirely failed me. The pilot refused duty;—he would have nothing to do with us, and no one could be persuaded by any argument to cross the boundary. In this case, therefore, we had —as we had often done before—to trust to Providence, a good look-

out and a constant use of the lead. Thus we, in about six hours, succeeded in gaining an excellent anchorage in a perfectly landlocked bay on the North side of Ayos, having passed South of Roytta, between Wahalmi and Huituri, and South of Grunmuletto.

As we were busily occupied in choosing our way, four vessels of the description mentioned passed us, but we were too busy to send in chase; and we had not advanced two miles on our way before our motions were telegraphed along the coast by dense smoking fires.

26th.—The track for small vessels being marked inside of Ayos, Ward took the gig to look out for any such craft coming that way, and in rounding an island suddenly came upon three sloops, two of which the crews managed to scuttle before he could reach them; but the third, in which a breakfast party was going on, was quickly left by the crew, who had only time to take to their boats to escape us. She proved to be a very fine vessel, quite new, and built expressly for the trade, but with no cargo. One of the others was merely a wood boat, and as her cargo was floating out Ward satisfied himself by unbending her sails. The third was deeply laden, but before she had time to fill and sink, he had lashed her alongside and saved a valuable case of furs and about thirty casks of most excellent butter, weighing upwards of 300lbs. each.

Whilst he was engaged with his boat's crew of four in transshipping the cargo of the sinking vessel, a general shouting of the natives on shore saluted them. They were collecting in large numbers on the beach, and as this was within ten or twelve miles of Ervasti, the place where the *Esk* had been so warmly received, he was in anything but a pleasant position until our paddle-box boats arrived to his assistance.

During this the interests of hydrography were not forgotten, and magnetic observations were going on at the other end of the island; which, on being computed, gave 12° for the variation, but which proved to be an amount much too great for the head of the Gulf of Bothnia.

27th.—As it was blowing hard, I determined to verify the magnetic observations on another part of the island, and as the channel was narrow and troops not far off, every necessary precaution was taken to prevent surprise; but we had scarcely commenced our observations when the pickets fell back with the report that a troop, not of Cossacks, but of reindeer, were coming down upon us. The rifles were immediately in requisition, and we soon perceived a pack of about fifty; which allowed us to approach them within a fair distance, but all hands were too eager to go to work with any good effect. It was necessary, therefore, to reduce our party to a few crack shots. Soon the "minnies" began to tell, and at one time I had three fine fellows on the ground within a few hundred yards, and so bewildered had the poor creatures become that I could easily have killed half a dozen more. But we had as many down as our men could carry to the boat, and as the forest was very close it required care in marking out the track from where they lay down to the beach. We heard afterwards

that numbers were on the mainland, that they crossed over on the ice, and, finding abundance of good herbage and a fine dry soil, they preferred remaining where they were to swimming back again.

The island is not cultivated, having only two poor fishermen for inhabitants. It is about twenty yards high, and shows a well defined sea beach formation, its first appearance above water being an island of about 100 yards in diameter. On the summit is a Russian trigonometrical station, erected in 1852; when two of their steamers were sent up to survey and find out a ship channel from Tornea to Uleaborg. Whether they effected their object we could not ascertain.

28th.—The wind having moderated, though a considerable swell remained, at 6h. a.m. I proceeded round the West side of Ayos to endeavour to find a passage to the open sea; but after getting entangled in a labyrinth of rocks and striking the ground rather hard, I thought it better to return to the anchorage in Haparanda Roads. While running in observed three large boats escaping out of the Roytta Passage during our absence. We were afterwards info med that six boats had escaped at that time with a part of the cargo of the schooner—sugar and coffee.

29th.—The wind having moderated, steam was got up and we shortened in cable, but an officer from Haparanda coming on board we remained at anchor. He was, however, a true Fin, as well as his father before him, and either would not or could not enlighten us; and in no place did we find so much difficulty in ascertaining any fact from reports. No two people gave the same statement, and as to information respecting the Russian coast it was forbidden ground.

A duty on many articles is exacted by the Swedish custom-house when coming from Finland—fourpence per barrel on tar and a halfpenny per pound on butter. Consequently there is much smuggling going on, which it is found impossible to prevent, particularly as the Russian Government rather encourage it! A small branch custom house stands on the West side of Roytta; from whence it is very easy for boats to cross over to the Swedish shore. The boundary line was a point most difficult to ascertain, and even by applying to the custom house at Haparanda, the answer was that the only certain way would be, on capturing a vessel, to send for one of them to say whether she was in Swedish or Finnish water! On all the islands near the boundary a beacon-pole is erected, with a plate, on which is engraved the distance and direction of the line of demarcation. In the River Tornea the depth of water decides it; and it passes between Roytta and Hampalaviska four hundred yards from the latter.

In the evening we pulled round to the North side of Roytta and ascertained there was not more than one foot water between it and Binko when at a medium height, so that a ship lying South of Roytta keeps all trade from passing in that direction unless there is a channel North of Biorko, which could not, for a certainty, be ascertained from any one.

Oct. 1st.—Beautiful calm day. Continual offers were being made to buy our prize, but refused. The butter also had several bidders,

being the produce of places near the banks of the Kemi (Chemi), a country famous for its dairies. We now proceeded to the eastward, under Kunsulu, sending boats away to sound; found the island stocked with grouse. In the course of the day stopped several small boats going to islands to take off their sheep, and purchased from them some of the salmon trout of Kemi, which proved very good. In the evening the paddle-box boat was sent to row guard, and captured a small boat smuggling 600lbs. of butter. She was liberated (to the annoyance of the custom house) the cargo belonging to a merchant of Haparanda.

2nd.—Thick, dirty weather from S.E. coming on, we were glad to get back to our anchorage in Haparanda Roads, a little inside the Swedish boundary. In the afternoon a small ketch was seen standing in for the vessel from the East. The gigs were immediately sent to stop her before she reached the neutral ground; but all their firing did not bring her to until close to the ship. On the Master coming on board he said he was a Swede from Kinfeskar, with 100 barrels of tar which had been left there, but suspiciously insisted that he had crossed the boundary before he was boarded. It was a nice question, so he was allowed to go.

3rd.—Our motions were closely watched from the tower of Biorko church; and, possibly expecting an attack on the custom house, the riflemen were sent down all the next day to watch for our landing.

4th.—A large party of ladies and gentlemen from Kalex came on board to visit the ship. We learnt from them that this was the most important time to keep a strict blockade, as in a short time the water will be frozen.

In the afternoon we found ourselves at a party at the Commandant's at Haparanda, in hopes of meeting some Russian officers; but whether they were afraid of the General or waiting for us in the woods of Roytta, did not transpire, but the former was the excuse for their non-appearance. We were for purchasing boots and furs in the town, but scarcely anything, excepting a few reindeer tongues (four for a rix), could be obtained. The Commandant was most hospitable, never thinking we could drink enough punch or smoke too many cigars. The party terminated in a Swedish supper, consisting of a number of unknown dishes, but by no means bad. We were not a little amused by finding amongst the guests the Master of the ketch we had taken and released two days before,—particularly as I had ascertained that he had come from Uleaborg and not the Swedish island Kinfeskar, as he had stated. He was a bold, sharp fellow for running the risk he did.

5th and forenoon of 6th.—Too stormy to move. Our blockade appears to give great satisfaction to the two Stockholm steamers, as they have now a monopoly, the Russian schooners being afraid to trade along the Swedish coast; but the two English vessels wish us away, the price of tar having risen 50 per cent. per barrel, and great difficulty is found in getting lighters.

7th.—In the afternoon observed two small schooners escaping to

the eastward from amongst the Swedish islands; but they were too far off to catch them, had I been inclined to try it.

8th.—Blowing fresh, but being very anxious to find a S.E. passage to the sea we proceeded towards Ayos and then struck South, boats ahead sounding. After several times shoaling our water and stopping, the island of Yxkivi was seen, when we proceeded more rapidly; and it was time, for night was coming on, the weather getting cold, ice forming on the deck, and icicles hanging to the paddle-boxes. On nearing Maxa Point, two large boats were seen standing out, when Ward gave chase in the gig and caught the leewardmost one—a small sloop with twenty-six barrels of tar; but she got on a rock and was not brought on board until the next morning. In the mean time I was trying to get the ship into the anchorage marked in the chart inside of Laita Kari; but being dark and the boat getting two fathoms, we anchored outside in a very awkward position had the wind drawn round to the S.W.

9th.—Blowing fresh from S.E.; light fall of snow; freezing hard. First and second gigs sounding. Made magnetic observations on Yxkivi. Sounded in towards Ervasti, and examined the supposed anchorage inside of Laitakari. Found it filled with rocks and little islands, and no place for anything but small vessels. While pulling through the channel, found a large boat with fifty casks of tar scuttled, and her masts cut away. The crew had seen the *Firefly* outside and had taken these precautions to prevent detection. The ship, however, being in a very unsafe position, we returned to Ayos; where we arrived an hour after sunset, having several times shoaled the water to three and four fathoms.

10th.—Ward went with the boats to examine the inner channel. On opening the southern entrance several boats were seen, which immediately started off, and he was led to chase as far as Yxkivi. It ended in his capturing a sloop, three large boats, and a small one, carrying tar, butter, and rye flour to Tornea. Some of the prizes did not arrive until the next morning, and as the thermometer was down to 29°, it was rather cold work, particularly as they had taken no provisions with them. A party was out shooting deer, but only got four, having proved themselves miserable shots, the whole herd (about 200) being at one time driven down to a narrow tongue of land, and surrounded. A third party was bringing off firewood, the coals being very low in the bunkers.

11th.—Arranging about the prisoners. Released the boats with rye, but took tar and butter, the crew of the boat containing the latter having deserted.

12th.—In the morning proceeded towards Haparanda, but took the ground off Huitwrin. This place had been passed five times before, but in consequence of the N.E. wind the water had fallen four feet. It was now blowing hard, the water freezing wherever it fell, icicles forming about the bows, and ropes frozen together. A bower anchor was, notwithstanding, soon laid out, and the ship hove off without damage. On anchoring off Haparanda large fields of ice were float-

ing down the Tornea, and collected in such quantities about the ship that it seemed quite time to be moving South.

In consequence of our close blockade, the price of tar was now up to eighteen shillings, in fact it could not be purchased at that. Thirteen schooners, laden with valuable cargoes for the coast of Finland, were lying behind Peroakeri, but dare not move. The vessels themselves we heard had been transferred to Swedish owners since we arrived. The Tornea was in such a state with ice that boats could not navigate, so it was resolved we should join the Admiral with all dispatch, and leave it to him to send another vessel up if he thought right.

13th.—It will be seen by examining sheet No. 8, that to the North of Hanhinkari (Paho) there is only nine feet water, but we had squeezed past by stirring up the mud. Now, however, that the water had fallen four feet I had great misgivings as to the possibility of returning. The alternative of going round by Yxkivi or being frozen in was not pleasant. By carefully sounding, a channel of fifteen feet was found and the ship moved through it. At 11h. a.m. steamed out, giving a Swedish brig a tow.

14th.—At 8h. a.m. made Biuro Fiard in a heavy snow storm, and was glad to take shelter for the day.

15th.—Wind had shifted to South, and too much to make progress with, considering the small amount of coal, and none to be had here. The harbour had a very wintry appearance, everything covered with snow.

16th.—Blowing hard from S.E., with a heavy fall of snow.

17th.—At 5h. a.m. tripped our anchor, but was recalled by *Tartar* to take despatches. In the meantime I examined the rocks outside, and obtained clearing marks. About eighteen inches less than is marked on the chart was found. 3h. p.m.—*Firefly* picked me up and proceeded South. 11h.—Communicated with the *Porcupine*, and received letters and parcels.

18th.—Blowing very hard from the South, and having but little coal, I thought it advisable to try to get into Umea. None on board had seen the place and a heavy sea was running. The beacons are so insignificant that it was with much difficulty they were made out, and no Pilot coming off to our signal guns, I bore up when the bearings of the beacons came on. The outer danger is nearly three miles from the land and the beacons are of the same height; so that when they are open it is some time before it can be ascertained on which side they are open. In consequence of this we shoaled the water to about three fathoms. Captain Stewart, of the *Dragon*, seeing our critical situation, got a small steamer to tow his boat out with a Pilot. When inside of Brelskar the anchorage is excellent, and we steamed up to Holm Sund, where there is a large establishment for shipping plank; and it is at this place there is the greatest amount of Finnish trade. Before the *Dragon* arrived 100 boats might be seen crossing over the narrow channel called the East Quarken, laden with tar, rye, &c.

19th.—Having received ten tons of coal from *Dragon*, and made

observations for variation on a small island, proceeded to sea, and sounded to the southward.

20th.—Anchored in Herne Sand and commenced coaling.

24th.—Having coaled, in the afternoon proceeded to sea. Examined the rocks outside and sounded over to the North entrance of Aland Islands.

25th.—At 6h. 30m. p.m. anchored in Fogle Fiard, having reached the islands by moonlight. The *Aigle* had arrived only two hours previous, though she started from Herne Sand twenty-six hours before the *Firefly*, but went through the Quacken. Admiral Baynes, in *Retribution*, in the anchorage.

30th.—'Wayed, and proceeded to Oregrund, where we anchored at 3h. p.m. The passage from the South is amongst islets and rocks, but very uninteresting, as well as the village.

31st.—Heavy rain, but pleasant, warm weather. 10h.—Obliged to anchor amongst islands, on account of fog, until 1h. p.m., when we cleared Swartclub; but, the fog still continuing, at 7h. p.m. anchored between Sodgran and Flotjan, on a bank of twenty-nine fathoms, accidentally found by lead, where we lay very comfortably for the night.

Nov., 1st., 6h. 30m.—'Wayed and proceeded for Bogs Kanen; but before it was seen a thick fog again came on.

2nd.—Still fog. At 8h. a.m., being in seven fathoms, anchored, and on clearing up found the ship on the West side of Nargen. 'Wayed and joined the Commander-in-Chief,—five English and two French line-of-battle ships.

The price of salt on the island of Nargen and at Revel had risen to eighteen silver roubles a ton (500lbs.), and the poor people were offering anything in exchange.

11th.—Left Nargen with Commander-in-Chief and *Majestic*, and on the 14th anchored in Kiel.

Dec., 5th.—Proceeded to buoy the Vengeance Shoal; and on 6th the fleet passed, running through the Belt in the dark at full speed, a thing certainly never done before.

10th.—Anchored at Sheerness, being the first vessel of the fleet that arrived.

EXPLORATION AND SURVEY OF THE RIVER LA PLATA AND TRIBUTARIES,—*By Lieut. T. J. Page, Commanding U.S. Steamer "Water Witch."*

The Parana discharges its immense volume of water into La Plata by the confluence of three of its principal branches with the Uraguay, and by a number of other branches of less importance communicating

directly with La Plata, thus forming a delta of vast extent. The various branches susceptible of navigation were explored and surveyed.

The river was ascended through its main channel, in the *Water Witch*, up to the confluence of the Paraguay, about 800 miles from Buenos Ayres, when this latter river was ascended above that point about 900 miles up to a Brazilian military post called Corumba; beyond which the expedition, at this time, was prohibited from proceeding by the Brazilian government, for the reasons hereinbefore indicated.

The point of junction of these two rivers is about twenty-two miles above Corrientes, the principal town of the province of that name. Subsequently to the period now alluded to, the further exploration of the Parana—that portion of it yet unknown—was attempted; but the progress of the steamer was arrested by an assumption of unwarrantable exclusive jurisdiction by the government of Paraguay over waters where the right was shared and the jurisdiction concurrent with the Argentine Confederation. The right to explore the river throughout the extent of the jurisdiction of the Argentine Confederation was vested in the *Water Witch* by an injunction from the provisional director, General Urquiza, on its citizens to afford the expedition every facility, aid, and assistance; and on the other hand, there rested on the *Water Witch* the obligation to carry out the grant that had been made by this liberal and enlightened act.

The progress of the vessel, however, in her ascent of the river, while carrying out the instructions of the department, and while acting not only by the permission but by the express desire of the Argentine Confederation, was arrested by the commission of an outrage on the part of the Paraguay government, which I sought in vain to avenge. The means were ample and available; the mode and manner of using them clearly demonstrated; the authority full and unquestioned, and resting in the hands of one whose rank and position in the command of a squadron should be a sufficient guarantee that the honour of his country's flag is in safe keeping when entrusted to him. The department having been fully advised of all the circumstances connected with this transaction, I abstain from giving, in this report, a detailed statement of what I must ever consider a wrong, an outrage unavenged. It becomes me to state, however, in this place, that the unwarrantable course pursued towards the *Water Witch* was induced by the exasperated state of feeling on the part of President Lopez, of Paraguay, arising from the fact that, in the discharge, not only of the obligation imposed upon me by instructions, but by my duty as an officer, I had removed, by means of the *Water Witch*, from under his oppressive rule a number of American citizens, who, located in that country for the transaction of commercial and other business, and having come under the ban of his displeasure, were treated in a manner not to be tolerated.

The time has elapsed when the indignity offered the flag should have been avenged, but I trust it has not passed when the govern-

ment of Paraguay shall be made responsible for the pecuniary losses sustained by those American citizens, and caused by an exercise of the most tyranical power.

In ascending the river Parana up to the confluence of the Paraguay, the territory on both sides belongs to the Argentine Confederation, with the exception of a portion of the right bank—about 145 miles in extent—which pertains to the State of Buenos Ayres. The provinces bordering the river are Entre Rios and Corrientes on the left, and Santa Fé on the right bank, the northern portion of this latter province extending into El Gran Chaco—the home and almost boundless domain of various tribes of inhospitable Indians. This is an extent of country embracing not less than 200,000 square miles; and notwithstanding it has been partitioned out by imaginary limits among the different states surrounding it—the Argentine Confederation, Bolivia, Paraguay, and Brazil—the Indian yet roams that vast domain in undisturbed possession. He sallies forth at times to rob the white man, and when pursued finds refuge in the immensity of this region, which he calls his own. This extent of Pampa country—similar to our prairie—is well watered by streams, whose navigability, in part, has been proved, and whose banks are well studded with timber and wood for fuel. The fertility of the soil is unsurpassed, and the grass, in luxuriance unequalled, affords rich pasture for innumerable herds of cattle, horses, sheep, &c.

On the opposite bank, in the provinces of Entre Rios and Corrientes we find a sparse, but hospitable population, inhabiting a country rich in natural resources—save those of minerals—soil fertile, and susceptible of producing in great abundance the various grain crops, cotton, tobacco, and every variety of vegetable. From the interior of these provinces small rivers empty into the Parana, whose navigability, at certain seasons of the year, would afford the medium of easy transportation to market for all the products of the country.

The city of Parana, the seat of government, is one of the most important towns of Entre Rios, although not the most populous. In Santa Fé, the province immediately opposite, the chief towns are Santa Fé and Rosario—the latter being the principal port of entry of the confederation. The population of this place has increased, within the past three years, in a ratio truly surprising, showing the effect of confidence in the recently established popular form of government.

Added to this may be mentioned, as an active stimulus to this influx of population into Rosario, the anticipated construction of the recently projected railroad from that place to Cordova. The route has been surveyed by one of our own countrymen, Mr. Allen Campbell, whose reputation in South America as an engineer is of the highest order, and whose favourable decision as to its practicability is quite sufficient to ensure the connecting of the western with the eastern part of the confederation by this iron bond.

In the prosecution of this survey it became necessary for Mr. Campbell to make a very thorough exploration of the river Tercero, which, under the name of Carcarana, empties into the Parana, a short dis-

tance North of Rosario. To him I am indebted for information relative to this river of such a character as to preclude the necessity, on our part, of a closer examination than we had already made.

He says, "The Tercero is not navigable in its natural state, neither is it susceptible of being made so by artificial means, at least, for any practical or useful purpose."

The construction of this road between Rosario and Cordova, together with the navigation of the river Salado, will contribute vastly to the commercial prosperity of the confederation, and not less to the perpetuity of its political existence.

There are many points in which the Parana and Paraguay assimilate to our western waters. Their course is from North to South. They have their periodical rise and fall, caused not by the melting of snow and ice which influence the latter, but by the rainy and dry seasons of the tropical region of Brazil, in which they take their rise. The average rise of the Parana is twelve feet, which begins in December, reaches its maximum in February and March, and will be found at its lowest state in August and September. In the month of October there is a partial rise of six feet, called the "repunta," which continues not longer than one month, when it subsides again to its low state.

The *Water Witch*, with a draught varying from eight to nine feet, ascended the river during the month of September, when it was at its lowest state, and experienced no difficulty from the want of a sufficient depth of water. Its channel is subject to changes during the season of increase. This, however, occasions no difficulty in the navigation of the river, because the vigilant pilot soon learns, from experience in river navigation, to discern, by inspection, the course of the main channel. The velocity of the current averages 2½ miles the hour. Owing to the almost numberless islands with which this river is studded, some of them many miles in extent, its width, in parts, from mainland to mainland, is as much as fifteen miles; but the width of the river proper varies from one-fourth to one mile. Its banks, at the distance of 300 miles from its mouth, towards its source, are well covered with the best quality of wood for steamers; and they maintain this character throughout. Many of the islands are sufficiently elevated to escape inundation, and offer an inexhaustibly fertile soil for cultivation, especially in rice.

On entering the Paraguay river, at the point spoken of, we have Paraguay on the left bank, and still El Gran Chaco on the right. This river differs from the Parana in several particulars. Its period of rising is generally the reverse; it contains but few islands; is confined between narrow limits; is more easy of navigation, because less obstructed by shoals; and the course of its channel is less variable; its width from one-eighth to three-fourths of a mile; its velocity two miles per hour; and its rise is from twelve to fifteen feet. In October it attains its maximum, and in February its minimum state. From its mouth to Asuncion, (the capital,) a distance of 250 miles, there were found no less than twenty feet of water, when the river had

fallen about two feet. This depth of water remained unchanged for the distance of several hundred miles above Asuncion, and the *Water Witch* had ascended the Paraguay seven hundred miles above this place ere she found less than twelve feet. At this time the river had fallen several feet.

The admirable adaptation of these rivers to steam navigation cannot but forcibly strike the most casual observer.

There are no obstructions from fallen trees, neither shoals nor rocks, to endanger navigation. At suitable points—in fact at every point, in Paraguay particularly—an abundance of the best wood may be procured immediately on the banks; and, when populated, no difficulty will be found in obtaining a supply of it prepared for immediate use. By experiment carefully made, one cord of the Paraguay wood was ascertained to be equal, in the production of steam, to a ton of the best anthracite coal.

The left bank of the river, up to the distance of 450 miles from Asuncion, is populated; but more and more sparsely as the northern frontier is approached. Between the most northern Paraguayan and the most southern Brazilian settlements, a distance of 250 miles, there is no habitation of civilized man. Various tribes of Indians were met with at different points, with some of whom we "held a talk," and parted on such friendly terms, because of the numerous presents we made them in trinkets and tobacco, that they became somewhat troublesome, following us along the banks on horseback, desirous that we should repeat the visit on shore.

The "cacique" and one of his tribe were induced to come on board the vessel. They manifested no astonishment, notwithstanding the novelty of all they saw, a steamer, an object to them incomprehensible, and the first to plough the upper waters of the Paraguay.

Between the town of Santa Fé and Fort Coimbra, the most southern Brazilian military station and settlement, a distance by the river of about 1,400 miles, there is not the residence of one civilized man on the Chaco side. In 1855, a colony of Frenchmen was established, however, a short distance above Asuncion, under the auspices of the Paraguay government; but ere many months had elapsed it fell into disrepute with President Lopez, and was abandoned. The apprehension of inroads from the Indians, up to this time, so effectually excluded all settlement in the Chaco, that to the Paraguayans, the river which intervenes forms an impassable barrier, and the country on its opposite side a *terra incognita*. From Coimbra we ascended the river to Corumba, a distance of 120 miles. Intermediate the two places is the small village of Albuquerque. We had now reached the northern limit, Corumba, in lat. 19° S., to which our exploration of the Paraguay was circumscribed by the Brazilian government, having passed through 15½ degrees of latitude, in a direction generally North, and arrived at a point in the interior of South America, very little short of 2,000 miles from the ocean by the course of the river. Judging from what I saw and heard, I have no doubt but that the *Water Witch*, at the season of high water, could have ascended 300 miles

further. Up to the point reached by the *Water Witch*, steamers of five feet draught could ascend at all seasons of the year; and with a more suitable draught of three or four feet, they could doubtless reach Cuyaba, the capital of the rich province of Matto Grosso, the frontier state of the empire of Brazil, bordering on the Paraguay. This place, with a population of eight or ten thousand souls, will present an important market to commerce, should Brazil abandon her exclusive policy in river navigation, and, with Paraguay, declare the navigation of the Paraguay river open to all commercial flags.

The most direct communication held by this place with other parts of the world is through Rio de Janeiro, over mountains, passable only by means of mules, and through a distance of 1,200 miles. The Paraguay is now made known to the world as navigable into the very heart of her rich frontier province; and Brazil, having become awakened to the vast importance of such a channel of communication, has, I learn since leaving the waters of La Plata, entered into a treaty with Paraguay for the right to the navigation of that part of the river passing through her territory, or, more properly, claimed by her.

This is a striking instance of the important results which will eventually flow from this exploration, and evinces the high appreciation entertained by Brazil of the developments arising from the ascent of the *Water Witch* into the interior of a country never before known to be accessible to steam navigation. The arrival of the *Water Witch* at Coimbra was hailed with lively enthusiasm, as the forerunner of a new era in the prosperity of that region; as the pioneer of its commercial intercourse with the world; "as an event worthy of commemoration by the erection of a lasting monument."

As this was the first fruit of the expedition, it necessarily awakened to a lively sense of its importance the slumbering energies of Brazil, the country most deeply interested in the facts established.

It becomes a pleasing duty, at this part of the report, to make my acknowledgements to the Comandantes of Coimbra and Corumba for the very polite and hospitable reception extended to us. The whole district is under the command of the Comandante of Coimbra, Antonia Peixoto de Azevido Ravim Capite, who controls an institution established at Albuquerque, which not only does great credit to the government of his Imperial Majesty in its efforts to civilize and Christianize the Indians, but trains up, by its benignant tuition, the rising generation, which will, in time to come, form a formidable force, competent to protect and defend her distant frontier from hostile invasion.

The policy of Brazil towards these Indian tribes is both lenient and humane, and well worthy the imitation of any government under whose guardian care these children of the forest may fall.

I have stated that permission to ascend the Paraguay river beyond Corumba had been refused. I was, consequently, forced to abandon, for the present, its further exploration, hoping that on a more mature consideration of my application the government of Brazil would yield its opposition. Permission *was* subsequently granted to explore all

the tributaries of the Paraguay within the jurisdiction of Brazil; and, while anxiously expected, it reached me just on the eve of the rupture of my friendly relations with President Lopez, under whose displeasure the further exploration of all the waters of the Paraguay, or the entry within the limits of her territory, was prohibited by a formal proclamation. Our work was thus excluded from the waters of Paraguay that had not been explored, and, by the outrage before mentioned, prohibited also from a further exploration of the Parana. Previously to this prohibition, the exploration had extended a short distance up the Vermejo, one of the most important tributaries of the Paraguay, to which, by one of those arb trary acts incident to a consciousness of power, President Lopez asserted exclusive jurisdiction, based upon a treaty *not* concluded, but *rejected* by the constituted authority. Concurrent jurisdiction is claimed by the Argentine Confederation with Bolivia as a question not admissible of discussion; and she even goes further, in the extension of her claims to a large portion of the Chaco, many miles North of the Vermejo; thus sharing the Gran Chaco with Bolivia, and excluding Paraguay altogether from any right to territory on the right bank of that river.

Paraguay, however, asserts her claim, not by right of possession, but through a sufficient force stationed near the mouth of the river, by which she controls its navigation and that of its tributaries.

It had been my aim and object to continue the exploration of the Vermejo, and attempt that of the Pilcomayo—a river of importance to Bolivia, and also to the commercial world—if practicable of navigation; but the same proclamation which closed the Paraguay to further exploration closed this river also.

The time is not far distant when all such prohibitions will be removed; when, under the march of intelligence, exploration and its attendant developments, will open the road to commerce, to the advancement of education, and to the establishment of the most amicable relations among the distant nations of the earth.

The president of Paraguay, with intelligence far in advance of what could be expected in a country whose existence should date from 1840, and the people of Paraguay—than whom there are none more hospitable or kind—are alive to the importance of commerce, and aware that by it, alone, can the budding resources of their beautiful and rich country become thoroughly matured and developed.

The country of Paraguay presents a field for enterprise of which other portions of the world are profoundly ignorant. Its population, secluded from the world until the year 1840, were ignorant of their own hidden treasures, not of diamonds and gold, but of the more substantial, the more reliable products of the soil; which, aided by man's partial exertions, would yield a most abundant harvest. One of her natural products—the "yerba"—has, up to this time, been the chief source of profit. But, independent of these, as well as of the wealth centred in the herds of cattle which graze upon her extensive plains, it is the hidden treasure of her soil, it is agriculture—the basis of commerce—which she must cherish as the means by which she is to

reach her destiny. Her mines of iron are of a superior quality, and although but partially tested, give evidence of a supply far exceeding her own and the combined wants of the neighbouring States.

At the distance of thirty-eight miles below Coimbra, and in lat. 20° 10′ S., the river Bahia Negra empties into the Paraguay, on the right bank. The entrance to the river, and the immediately adjoining country, constitute the entire territory which is yielded to Bolivia by the governments of Brazil and Paraguay; their claims, however unfounded, covering the remainder of the right bank of the Paraguay from the mouth of the Vermejo. The *Water Witch* entered the Bahia Negra, and after ascending about thirty-six miles found the river closed by an impenetrable growth of grass, notwithstanding the depth of the water was nine feet. The banks of the river here became lost and blended with the vast sea of grass rising above the water. The high lands of Bolivia, from whence this river rises, were too distant to be seen. Nothing, save the mountains of Coimbra and Albuquerque, distant forty miles, interrupted the boundless plain of grass seemingly floating on the water. Not only was our progress in the steamer arrested, but the grass so closed in the channel of the river as to render its further exploration impracticable with the boats. At the season of low water, it is confidently believed that an opening of this river might be effected into a region of Bolivia called Otuquis, which would give that state the nearest approach to waters navigable at all seasons, and thus render accessible to market the fairest portion of a country now shut out from the world.

The opening of such communication, which must naturally follow this exploration, I confidently look forward to, at no distant day, as one of its most valuable results. Public attention had already become awakened to the fact, ere the work had been completed, that this region of Bolivia was accessible to navigation.

Before leaving the waters of the Paraguay river, a very thorough exploration of the country of Paraguay was made. This was performed principally by the aid of Lieutenants Powell and Henry, who by means of the sextant, pocket chronometer, and artificial horizon, determined the position, in latitude and longitude, of many important points. By this work, we are enabled to contribute to geographical science a degree of accuracy in position which this country does not enjoy at the present time. The agricultural districts, as well as those of the natural products, the yerba, &c., were explored, and the mode of gathering and curing the "tea of Paraguay" accurately observed and noted by Lieut. Powell. The interesting establishments of the Jesuits, under whose benignant rule the Guarany Indians were redeemed from a state of barbarism to civilization and Christianity, were visited and their geographical positions determined. These establishments still retain in remarkable preservation evidences of the wonderful zeal, perseverance, skill, and ability of their founders, in the structure, carving, and painting of their churches. When it is remembered what the condition of the country was at the period of the erection of these buildings, with all that pertained to them; that

it was a wilderness; that its inhabitants were savages; that out of this wilderness, and by these savages, these truly magnificent edifices were erected, and at such a distance from any civilized nation, one is lost in wonder and admiration at the will, the nerve, the zeal to attempt, and the intellect and skill to achieve such master works.

To give a faint idea of the course pursued by the order of Jesuits, from the period of their landing to that of their expulsion, and of the results of their labours, which are so intimately interwoven, not only with the history of Paraguay, but with that of the Argentine Confederation also, would lead me far beyond the limits of this report. I must therefore relinquish it here, for a more appropriate time and place.

Notwithstanding the narrow limits within which it is now kept, the cultivation of the soil was found further advanced in Paraguay than in the *riverine* provinces of the confederation.

The population may truly be said to be an agricultural people. The policy of Francia threw them upon their own labour, and made them dependent upon themselves for all articles of consumption. It drove them to the cultivation of the soil, at least to such an extent as to supply their individual wants; but it does not seem to have awakened or elicited either skill or ingenuity. With the least imaginable labour the earth brought forth her increase; and, secluded from the world as these people were by this restrictive policy, their infantile State had but few wants, and those were scantily supplied.

Time has changed for the better. Strangers are admitted into the country, the people are alive to progress, and the beneficial effects of that forerunner of all prosperity and intelligence, commerce, begin to be manifected in all their pursuits.

There is no trait of character more characteristic of the people of Paraguay than their hospitality to strangers. When we journeyed from one section of the country to another, whether on the frontier or in more settled parts, our movements were not only attended with perfect security, but our reception always with marked kindness. This country is open to the commerce of the United States. It presents a field, in common with the Argentine Confederation, which, in its abundant harvest, should not be allowed to fall into other hands. It is peculiarly our own. The similarity in the character of the rivers of South America to those of our own country, and the experience we have had in the construction of boats adapted to such navigation, render our builders and our navigators more competent to supply and run such boats than any other persons on the globe. It has been said that the commerce of these inland countries—alluding especially to Paraguay—can never be carried on directly with either the United States or Europe under their own flags, because vessels suited to the sea could not navigate these interior waters. In refutation of this idea—an idea not to be very much wondered at when we consider the ignorance that prevailed relative to their capacity—I need simply state the fact that the *Water Witch*, a "sea-going steamer," a man-of-war, though small, of nine feet draught, pene-

trated into the interior of South America to the distance from the ocean, by the river, of 2,000 miles. Ocean steamers of *four times* her tonnage may ascend these rivers nine-tenths of this distance at *all seasons* of the year, as their draught need not exceed six feet.

Previously to leaving the waters of the Paraguay, two of its small tributaries were explored and surveyed, the Jejui and Confuso. The former in the small steamer by Lieutenant Ammen, and the latter by Lieutenant Murdaugh. The Jejui rises in the mountains of Paraguay, and forms the channel by which much of the yerba is conveyed into the main river, and thence to Asuncion. The Confuso, less important at this time, and requiring much labour to render it navigable, or at all available, rises in the unknown regions of the Chaco, and empties into the Paraguay about sixty miles above Asuncion.

Directions for the River Parana,—*By Commander Barnard, H.M.S. "Vixen."*

In our volume for 1854 Commander Barnard's valuable directions for the River Parana appeared, as far as the first two sheets extend. We now give those for sheet 3 of that river.

Lower Pass of San Juan.

Part XII.—From the point of La Paz steer for a point on the port shore, as in the chart. Follow the port shore at a moderate distance for half a mile; then edge over for the lower point of an island on the starboard hand. Least water across four fathoms. Follow round a bight in the island, in about five fathoms, gradually opening out towards the Chaco on the port hand, and watching the lead carefully. The channel is narrow and about a quarter of a mile from the port shore for about three miles and a half, passing over a spot where a small island is marked in the chart, but which has disappeared. The soundings are irregular, from four to three fathoms, the shoalest part being about two and a half miles above the lower San Juan Island; after which it deepens suddenly to four fathoms, and then to six fathoms.

When a creek on the starboard shore is well open, steer for it and enter it about mid-channel. It lies in a N.½W. direction, and is about two cables' length wide. It has from six fathoms to seven fathoms water for about one mile and a half. At this part another creek meets it at right angles, a small island being in the centre of the cross. The channel is close to the upper or West point of this island, and the current sets directly on it; it is therefore requisite to pass it at full speed. In the *Vixen* the wheels cleared it by about two fathoms, and the least water was about 3¼ fathoms. You now enter another creek, still lying in a N.½W. direction for about a mile and a half; after which you pass into a broad channel and keep along the starboard shore until you arrive at a clump of trees opposite an island on the port hand. From this clump you cross over towards

the port shore, just below that part marked "Upper Pass of San Juan" in the chart. The *Vixen* anchored about mid-channel in six fathoms.

You now cross to the starboard shore, which must be followed as in the chart to Part XIII. of Chart 3.

In Part XIII. there have been but few changes, and the chart may be safely followed as a guide. Caalayti Sand has become an island covered with trees, and in the pass the least water was 4½ fathoms. After crossing from the starboard shore above the River Espinilla, keep about a cable's length from the port shore until you pass a second creek, but do not haul over for the starboard shore again too quickly; by doing so in the *Vixen* we got as little as sixteen feet, but in the proper channel found from three and a half to five fathoms.

After this we had no less than 4½ fathoms to the Esquina; where we anchored close off the mouth of the creek, in 5½ fathoms. A party was landed to cut wood on the right bank of the creek, just below the first bend. Large hard wood trees may be cut down in any numbers, but require much drying before they are fit for steaming purposes.

The island of Camba Nupa has become much smaller than it appears in the chart.

In Part XIV. the channel continues according to the chart until near the Pass of Quiriquincho, but great care must be taken in crossing from the port shore to the coast of Talar about 1½ mile above the island of Cottelate; the channel is narrow, and we found as little as sixteen feet. After following the Talar coast as in the chart, you must open out from the land, steering at first for the lower point of Quiriquincho Island, but hauling over gradually towards the port shore, where there was formerly a sand bank (as marked in the chart). Keep along the port shore at a moderate distance for about half a mile, and then edge over for a bight in the lower end of Quiriquincho Island. Follow the bight close round until opposite the lower part of a large creek on the port shore; steer for about the centre of the creek, and then haul up along the port shore. The chart may now be followed to Part XV.

Part XV.—After crossing to port, as in chart, we edged over towards the islands on the starboard hand and anchored abreast of them, with four fathoms on the port side and six fathoms on the starboard. The channel continues much the same as in the chart until you pass the Paso de Patil and arrive at the lower bank of a creek on the starboard shore. From this you must cross to port and keep tolerably close along the island on the port hand; pass the creek; follow the port shore to a point, and then open out to about mid-channel. You should not have less than four fathoms.

Note.—This part of the river seems to be very changeable, and sand banks have formed since the construction of the charts. In descending the river the *Vixen* grounded from attempting to cross over too soon. You must keep along the shore, which will be on your

starboard hand coming down the river, until near the upper part of the creek mentioned in the last paragraph.

After passing the lower mouth of the Caraguatai Channel, edge gradually over to port, and when the entrance to the Zagarete Channel is open steer over for the upper part of the island forming the starboard side of the entrance. On entering this narrow channel you must keep tolerably close to the opening between two small islands on the port hand, then cross and recross as in the chart. You will get as little as three fathoms.

There is not now sufficient water for a large ship round the coast, as marked in the chart, so as soon as you open a very narrow creek on the starboard hand, steer for it. In the *Vixen* there was just room to keep the wheels clear of the bushes. At the upper end of this creek there is an elbow, and care must be taken that the current does not take the ship on the starboard bow and throw her across the channel, in which the stream is very rapid. After emerging from the creek keep along the starboard shore, and proceed as in chart to Part XVI.

Note.—In descending the river keep a little distanc from the shore before arriving at the creek, and as soon as you begin to open it give the helm quickly, as the current sets rather across the mouth.

Part XVI.—Continue as in chart until past the Estancia Soto, then haul over for the port shore, and keep along it until abreast of the upper point of an island on the starboard shore, then haul sharp across for the high land with a farmhouse on it. From this continue as in chart for about eleven or twelve miles, when you will be opposite an opening in the islands on the starboard hand, in lat. 28° 45′ S. Steer through this opening for the Barranca.

Keep along the Baranca into Part XVII., until you are about a mile and and a half below the Orange orchard, then cross to port for the point of an island; keep along the North side of it at a moderate distance, pass a creek, keep along the port shore for about a mile, or until you pass another small creek, and haul over to starboard, standing along the large island below Bella Vista. There are now two channels; one leading to Bella Vista on the starboard hand; the other along the Chaco.

The *Vixen* took the channel to Bella Vista, keeping along the large island above mentioned to near the upper point, and then continuing the same course, about N. ½ E., until the town became open between the islands; we then steered for the high Barrancas below the town, keeping nearly mid-channel, or about N.N.E.

From Bella Vista to the Tres Bocas the channel is tortuous and difficult, changing every year, and can only be undertaken by a pilot constantly in the habit of going up and down, and who has seen the sand banks dry in the winter season. We found it so narrow that, although within a few yards of the bushes, there were 4½ fathoms on the starboard, and 2½ fathoms on the port side, the ship dragging through the soft mud and just steering.

In coming down the river we found the channel still shoaler, having no more than 13 feet; it is quite close to the bushes, and our wheels were not more than a foot clear of them.

The *Rifleman* found the outer passage much as it is marked in the chart; it is deeper than the inner one, and she found sufficient water to descend in the month of April, when there were only nine feet in that through which the *Vixen* passed a month previously. It joins the inner channel about two miles below the Tres Bocas.

From the Tres Bocas steer up for the middle mouth, edging over gradually to port, and keeping along the middle island: pass a large creek and then continue along the port shore to Part XXIII.

Part XXIII.—The channel here has altogether altered, and you must edge over to the starboard shore; keep along it, pass a creek on the starboard hand, (not marked in the chart,) and steer up for the lower point of an island, leaving it on the starboard hand, keep along the island, opening out from the upper point until the reach on your right is well open, then turn sharp to the Eastward for the starboard shore, and keep close along it to the point opposite the second island on the port hand. The channel now becomes winding and different from the chart, and the lead must be watched with care.

When abreast the point of starboard shore, continue on the same course for about a mile, you will then be nearly abreast the point of an island on the port hand, or just below the letter C in Chimbolao in the chart; then turn sharp to the Eastward, keeping about mid-channel until the reach between the islands on the port hand is open. Then steer up for the point of port shore. The channel now takes the same direction as marked in the chart until you come to the creek below Estancia-halado. Cross the creek and keep along the island on the starboard hand, opening out from the upper point towards the port shore. Follow the port shore until opposite the lower point of an island on the starboard shore, then steer up for Merced Point. Keep along the Barrancas into

Part XIX., and up to Point Sombrero. From Point Sombrero steer up mid-channel for the port shore, cross the mouth of a large river, and continue up about mid-channel for a point below Riachuelo. Keep close round this point and haul into the bay on the starboard hand. When abreast the upper point of the bay, haul over for the port shore where a sand bank is marked in the chart. Keep along the port shore until near a creek, open out to starboard off the creek, and when past it haul into port again. When you open a large river on the left, steer across for Corrientes. In anchoring off the town, beware of rocks both above and below the anchorage; a strong ripple always shows their position.

The above remarks may much facilitate the navigation of the River Parana, and prove a great assistance should the pilot be at a loss; but no man should attempt to take charge of a large ship unless he has been up and down during a low river in the previous dry season, when all the sand banks are bare, and marks can easily be taken.

The navigation of the upper part of the River Parana is not more difficult than that part between Rosario and La Paz, and there appear to have been fewer changes in the channel.

The land of Entre Rios is by far the most rich and beautiful of all the provinces; it is well wooded to the water's edge. Hill and dale covered with verdure and dotted with clumps of large trees, give it the appearance of park-land in England, and there are numbers of creeks and harbours branching off from the river into the heart of the country.

The Barrancas of Corrientes are treeless, and the country in general is so flat that a great portion of it is under water during the rainy season, causing a disease in the legs to the people who attend the cattle. There are large forests in the neighbourhood of the city of Corrientes, producing wood for ship-building and rafters for houses, which is very endurable.

Extracts from the Journal of Capt. M. S. Nolloth, H.M.S. "Frolic."—*St. Augustine Bay, Quillimane, &c.*

(Continued from page 78.)

The Imaum had been absent at Muscat, where his eldest son usually resides, for about a year. Accompanied by Colonel Hamerton the British Consul and H.E.I.C. Political Resident, I waited on his second son, who was administering the government: he was suffering severely from a fall from his horse, and on the following day the visit was returned, with a courteous message from him, by two younger brothers of gentlemanly appearance and address, with their attendants.

The Imaum's palace—both within and without—reminded me of the large, rambling, unglazed, and latticed residence of a Turkish pasha, with its entourage of hybrid-looking hangers-on in the shape of guards, janissaries, and eunuchs. Close to, are the stables, well supplied with choice arab horses kept for show rather than use—like the men-of-war I should add were not *these* wisely used, occasionally, as peaceful merchants.

To one who has visited any arab town on the coast, there is little interesting in that of Zanzibar: a large and partly ruinous castle near the strand—its prison-gates guarded by couching sentinels in rags—filthy and (for coolness) very narrow streets, here and there formed by high dingy walls with contracted entrances to the dwellings of the exclusive Musulmans; bazaars with every imaginable trifle; vegetable markets densely crowded with eager clamorous slaves of every hue from black to yellow, disputing with fierce gesticulations over a farthing's-worth of food; rows of small dark dens in the front of which amid his wares the deep brown Banian squats upon his hams

naked to the waist and false-jewelled, like the glittering tinselled gods which somewhat relieve the darkness in the rear:—these are the leading features of the scene.

The slaves are numerous—for the dominant race is Musulman and Africa is in sight—and excepting the industrious Banians, seem to be the only really working class. The latter are always to be found in the dominions of the Imaum, where, notwithstanding their idolatry, they are kindly treated by the Arabs, who no doubt admire their total abstinence from intoxicating liquors, and vegetarian habit, and to whom they seem to stand in the same relation, commercially, as the Armenians and Jews to the Musulmans of Turkey—being the skilled mechanics, the bankers, and indeed, generally, the men of business.

These worshippers of Brama are exceedingly careful to keep their race pure during their sojourn in foreign lands. Their intermarriage with other blood is as rare as in India, whither, in their declining years, they commonly return with the fruits of their industry. They appeared to regard us with a kindly feeling as fellow-subjects, and perhaps as belonging to the great Hon. "Kumpani," of which they often spoke, and we seldom passed their shops without salutations of "Yambo!" (friend!) "Yambo sana?" (are you all right my friend?) &c.

I was informed by more than one European that the influence of Colonel Hamerton with (not to say his ascendancy over) the Imaum is very great, and that it had conduced largely to the comfort of the Christian residents, who, previously to his arrival, many years ago, were seldom safe from insult or injury in the streets. A case fortunately occurred a few days after he had hoisted his flag, when a fanatical Musulman having presumed, in Oriental phrase, to "throw dirt on the beard of an unbeliever," it was with no little difficulty, after having complained energetically of the insult, that the Colonel prevailed on the Imaum to spare the life of the very orthodox offender.

It is said that on his accession to power, and on the plea of not being sufficiently versed in the mysteries of the Koran, the present Ruler—Imaum of Muscat, as he is usually termed out of his dominions—declined the exercise of the higher functions of the Imaumship, delegating, or rather abdicating, his authority in this respect to the Chief of a kindred tribe in the neighbourhood of Aden. However this may be, his Highness Seid Saeed Bin Sultan is respected by all his Arab and Moorish co-religionists in these parts as their spiritual head, however *politically* independent of him some of them may consider themselves; and it is said that he would be well received everywhere within the ten or twelve degrees of coast claimed by him, excepting, perhaps, at Sewee, near the Dundas Islands.

It is the invariable custom of the Imaum to present a handsome sabre to the Captain of every British vessel of war visiting Zanzibar or Muscat when he happens to be residing there.

While walking the streets of Zanzibar I was much annoyed at the zealous legerdemain adroitness with which two accompanying janissaries brought the tips of their long staves of office in contact with

the bare pates and elbows of any poor heedless Negroes who came, or seemed at all likely to come, "betwixt the wind and our nobility." It is true that as the latter turned round and with galvanic agility darted from "the presence," they betrayed no resentful emotion, but rather a grateful sense of the offending member—which they rubbed—having been left entire; but it was unpleasant to an Englishman, and drew from me at length a quiet remonstrance, with a request that our myrmidons would at least do their spiriting more gently. But the reply led me to conclude that this custom was merely one of the ancient prerogatives, by the exercise of which men in power in the East have from the remotest times kept up their dignity.

While we were here four dhows arrived with Negroes from Quiloa, the chief African port of embarkation of slaves for Zanzibar; at which latter place they are publicly sold about three quarters of a mile from the town. A slave-market was held every afternoon during our stay, and I visited it. I had previously witnessed the sale of slaves in various parts of the world, and their own apparent indifference had checked the sympathy I should have felt for them: but here I was much struck with the silent but deep, and I may add, intelligent grief depicted on the countenances of several of the "stock;" and I took especial notice of a tall sickly young Negro who, with eyes averted from the hateful busy Arabs standing in the centre of the wide circle formed by the fresh arrivals, occasionally lifted his long thin arms in unavailing grief toward the land of his nativity, still visible though blue in the distance. I was watching the poor fellow with interest when we were both aroused from our abstractions to the real business of the day by a sharp audible blow on his elbow with a short stout stick, which an active Arab urchin afterwards flung away with all his strength in order that in picking it up and running to return it to him, the points and paces of the unhappy creature might be patent to the bystanders.

Returning to the town in the evening, I came up with a group of Arabs from the market, who, surrounded by their new purchases, with outstretched arms appeared to be paying silent homage to the moon, then rising with bright full orb above the dark trees before us, and were doubtless expressing their gratitude to the Disposer of all good for the human beings just fallen to their lot. These also stood gazing at the moon as if it should have "yawned at alteration," and perhaps wondering if it could indeed be the same that had so often shone upon them in their sports in the land they had left for ever.

The custom-house returns of Zanzibar exhibit an annual importation of about 30,000 Negroes; many of whom are subsequently sent to the northward, a few to the Comoro Islands, and some to the West coast of Madagascar, where the Africans are considered superior to the native enslaved tribes: but a considerable portion of this large supply must be retained at Zanzibar, where the annual mortality is very great, arising not from overwork but from bad food and lodging and the extreme unhealthiness of the interior of the island, where they are employed on the soil. The customs are farmed out to a Hindoo,

who receives, legally, a dollar for each slave imported, but many are smuggled.

Since January, 1847, the Imaum has been bound by an agreement, concluded with the British Government nearly two years previously, to prohibit, under the severest penalties, the export of slaves from his dominions; also their importation from any part of Africa into his possessions in Asia, and to use his utmost influence with all the Chiefs of Arabia, the Red Sea, and the Persian Gulf to prevent the introduction of slaves into their respective territories. By an article of this agreement our vessels of war and those of the H.E.I.C. are authorized to seize and confiscate any vessels of his Highness or of his subjects carrying on slave-trade, excepting from one part to another of his dominions in Africa between lat. 1° 57′ S. and lat. 9° 2′ S., including the islands of Zanzibar and Monfea.

It is, however, to be feared that these inveterate slavers—man-stealers upon religious principle—will continue the traffic whenever and wherever they can do so with impunity, as long as the status of slavery is allowed to exist in their land; and a great change indeed must come over them before they themselves will be able, any more than some others, to exist without "the peculiar institution."

The domestic slaves, as is the case generally among Mahomedans, are treated with consideration, and are far from being overworked: indeed, it would too severely tax the indolent brain of a town Arab to devise hard work for his household attendants, so simple is his mode of living. The daily recurring cares and personal exertions of one bustling British housewife, with all her servants, fine furniture, and domestic arrangements, would speedily reduce a whole streetful of Arab householders to a state of stupid bewilderment.

But servants, even when slaves, are not always thankful for mercies bestowed, and a trifling illustration of this truth occurs to me as characteristic of slave and Arab life in Zanzibar. An aged Musulman, quiet, indulgent to a fault, and very devout, had for years past treated his slaves with great kindness and consideration, and about the time of our arrival granted to four of his young Negro boys two whole days in the week that they might—but without any stipulation that they should—duly attend to their devotions, and shortly afterwards ventured to allude to the many prayers they had no doubt offered in his behalf at the neighbouring mosque. This was certainly no disparaging expectation, but the young rogues, not satisfied with a simple denial of the soft impeachment, impudently declared that they "had never thought of such a thing—if he wanted it let him give them a day for the purpose,—they had no idea of going to the mosque or of praying for him *in their own hours.*" The dispute had not been satisfactorily settled when we left: surely a European master, with an Arab's faith, would have cudgelled the young rascals to their vicarious devotions.

Two dismantled vessels of war, a frigate and a corvette, one of which returned our salute, were at the anchorage off the town, and another frigate was lying near the country residence of the Imaum at English pass. The only European merchant vessels were a Spa-

nish brig, from Cadiz, and a Marseilles ship with cargoes of ivory, gums, and the ordinary African produce, and two Hamburg vessels, loading with that curious circulating medium, cowrie shells, for Lagos, on the western coast; there was no British ship in port, nor any British merchant residing at Zanzibar.

Several of the shoals and channels have undergone important changes since Owen's surveys in 1823–4. A greater portion of the shoal on the East side of Champany Island is covered at low water than a few years ago; while the reverse is the case with regard to the opposite one, which extends from the main or Zanzibar—the width of the passage remaining about the same; and there are now five fathoms close to Shangany Point, on a spot where, according to the recollection of the Imaum, a mosque and several houses stood thirty years ago. A buoy was recently placed to mark the East extreme of the spit of Champany Island, but I found that it had shifted to a considerable distance from shoal water. Perhaps a modern Arab's seamark should not always inspire the navigator with implicit confidence.

A European merchant informed me that one of his vessels had struck on the shoal or reef off the Island of Muembe, near the N.E. extreme of Zanzibar, and that he and the Master, on examining the spot and taking some compass bearings (less trustworthy than the eye where, as I think must have been the case here, points cannot be exactly identified with those laid down), considered that it extends at least 1½ mile farther out than as shown in Owen's chart. They found a clear and rather deep passage between it and the Zanzibar shore, but too narrow to be adopted.

I learnt from an old trader between Zanzibar and Mozambique that it was not unusual for vessels bound from the southward to Zanzibar to be set by a strong northerly current outside and past the South passage, as we had vexatiously been, and that Monfea Island should always be first made, and the ship then kept near the coast; also that having once, when bound from Zanzibar to Mozambique, neglected the usual precaution to sight the Table Mountain, or the high land northward of Mozambique, he was swept by a strong southerly current past his port thirty miles in ten hours, and it was only by standing well out from the coast of Africa that he was enabled after several days to reach it.

The westerly current which is known to set constantly from the North end of Madagascar is by many said to split about abreast of, and not far from, Cape Delgado—the two streams diverging and gradually approaching the meridian, North and South, as they near the coast. An intelligent seafaring native of Madagascar stated to me that this westerly current is felt about 100 miles northward of that island, and that dhows (compared with which, however, the Chinese junk is a clipper) never attempt, excepting with a strong westerly wind, to make any easting within fifty or sixty miles of the northern coast, even when bound merely from the N.W. to the N.E. extreme of it.

While we lay at Zanzibar I gathered some information regarding volcanic and meteoric phenomena which deserve notice. On the 2nd

November, 1855, an earthquake, or, as some residents called it, a "settling of the ground" (coral formation), was felt in the town and also about twelve miles distant, but no mischief ensued. A person who was sitting in an upper room at the time told me that he supposed a rafter over his head had given way, while a servant who was below imagined that the foundation of the house had subsided. A similar shock was felt in October, 1853, when a wall in the Consul's house was cracked from the ceiling to the floor. I could not learn for certain whether any decided proofs of subsidation, or any traces of ancient sea-levels indicating elevation, existed on the island.

Accounts were received a short time before our arrival that an eruption of the volcano in Comoro Island (the largest of the Comoro Group) had recently taken place. The only particulars which could be gathered from the Arab informants are, that lava had issued from several old places and also on the more eastern part of the island, that thirty huts had been destroyed, several dhows driven ashore, and a great quantity of fish cast upon the coasts. At about the same time (last July) a Hamburg vessel passing Comoro Island observed smoke like that of a volcano issuing from an elevated part of it, and reported it on his arrival at Zanzibar. A native of Comoro, residing at Zanzibar, stated that he recollected an eruption taking place when he was a very young child: he appeared to be about thirty years old.

On the 25th of October, 1855, an extraordinary meteoric phenomenon was observed at Zanzibar, of which I obtained the following particulars:—Colonel Hamerton had been noting the time of sunset, and his watch still lay before him, when he heard an unusual shouting in the street: some seconds afterwards he heard a noise like the hissing of a rocket, and on looking out saw a brilliant ball of about the colour and brightness of the moon, moving apparently with the velocity of a mortar shell, from near the star Markab towards Vega, leaving in its train a silvery, feathery streak of light. Suddenly it appeared to burst, emitting sparks around it like the bursting of a rocket, but without any sound audible at the place of observation. The meteor then continued its course till it arrived at about eight or ten degrees from the horizon, when it stopped, and gradually increased to about twenty times its previous size, blazing up like a mass of ignited straw, and spreading out to the shape of a balloon with the pointed end downward. It continued burning exactly eleven minutes by the Colonel's watch, (from the time of its coming to a stand,) when it disappeared, having become gradually smaller and less brilliant till, like a fire which has consumed its fuel, it expired. The silvery streak or wake remained visible until the evening became too dusk for further observation, viz., about twenty minutes after the disappearance of the meteor itself.

As this meteor appeared to be of very uncommon character, I begged a European gentleman, who with several of his countrymen had observed it from the roof of his house, a place of usual evening resort, to furnish me with a detailed account of what they recollected; and the following is the joint communication which they were good enough to make:—"On the 25th of October last, at 6.20 p.m., we saw a me-

teor pass in a direction from about S.E. to N.W., on the Northern horizon, about forty degrees high, like an enormous rocket, burning with an unusual bright light, of a bluish yellow colour: suddenly it opened like a tulip and separated in two parts, of which the head, like a reddish ball, remained in the sky at least ten minutes, gradually diminishing, while the tail or mark it had left in its passage continued to appear like a thin line of white smoke. The noise on passing was like that of a rocket, and we saw the meteor about three seconds before it separated."

It may be observed that some of the most intelligent Arabs in Zanzibar, in the belief common among Orientals that rare celestial phenomena portend great political events, especially disasters, such as the fall of states or dynasties, seriously inquired, if the meteor had not fallen towards *Russia*, (with which power we were then at war;) and an old Persian, who had seen it, and who, being a Moonshee, should have been more ready to impart his knowledge, on being asked to describe any details observed by him, rather surlily replied,—"Alaha Akbar! who can observe such things?—thus suddenly will come upon us the day of the resurrection!"

In a North-West direction from Zanzibar, and visible in clear weather, is the Pongany range of hills, the southernmost extreme of which is marked 2,000 feet in Owen's survey; and to the southward of this, elevated ground is shown about thirty-three miles distant from Zanzibar town. May not the above-described features of the meteor—its long apparent rest in the sky at about 9° altitude—its gradual increase in size, and subsequent burning out during eleven minutes, have resulted from a meteoric stone falling on the high coast opposite, and igniting a patch of dry tropical jungle?

On the 20th of November we left Zanzibar for Mozambique. Although a strong northerly current had been experienced during the whole time of our detention close to the East side of Zanzibar, we had a regular ebb and flow between the island and the main; and on leaving we again had a northerly current outside till we had stretched away about ninety miles to the Eastward of Pemba Island, when we found a moderate set to the Southward.

At Zanzibar I had been informed by the master of a European vessel, that some years previously, being becalmed, he was for several hours on the St. Lazarus Bank, or a bank a little to the Westward of the place assigned to it by the Admiralty chart, where it is marked as of "doubtful position," and that as he was being carried over it by a southerly current he saw the bottom throughout his course, and got several casts of 4 fathoms, and some of 3 fathoms; but he did not consider it prudent to anchor, as he had heard that it had been seen to break.

According to Horsburgh, the first notice of this shoal is in 1737, when the *Dorset* got from 12 to 18 fathoms on it: since then little has been ascertained regarding it; and after Owen's survey, during which an unsuccessful search was made for it, it was for a time expunged from the official chart. Being anxious to fall in with it, we shaped a course accordingly, and on the 1st of December, when a little to the

Westward of the doubtful position on the chart, we were suddenly surrounded by a shoal of sharks, and immediately afterwards saw coral bottom very distinctly, and had a cast of 10 fathoms. We were running S,W. (compass) two knots before a light wind, and rounding to immediately, anchored in 9 fathoms, when the ship tended to a S.W. current of two knots. Ahead—N.E. of us—and on each bow, the boats found 10 fathoms at about one quarter of a mile distant: astern and on each quarter the depth decreased pretty regularly to 7 fathoms at about one mile from the ship; but in one of the boats in a more southerly direction I had several casts of 6 fathoms, and two of 5½ fathoms.

The shoal, owing perhaps to the state of the atmosphere or sky at the time, was not marked by the very light bluish water which I think generally covers the coral banks near deep water in these parts, defining very clearly their outline; and it was not reported by the mast-head-man particularly ordered to look out for discoloured water. The water was exceedingly transparent, and from the boat I could distinctly see the varied shapes and colours of the different species of coral which thickly strewed the white sandy bottom.

I was anxious to get into deep water before dark, and having taken good observations for chronometers we weighed, and with topsails on the cap and a boat sounding and signalizing ahead stood S.W. as before, and shoaled very gradually from 9 to 7 fathoms in running one mile by patent log. Hence the soundings increased regularly to 20 fathoms, very shortly after which we had no bottom in 100 fathoms when the patent log showed 1·8 mile from the spot on which we had anchored.

The distance run S.W. from noon, when the lat. by mer. alt. was 12° 0′ S., was by patent log six miles which, with a S.W. current of two knots per hour, gives eleven miles S.W. upon which line the only shoal water was as above: on our arrival at Mozambique fifty hours afterwards the chronometers placed the spot anchored on 0° 35′ E. of St. George's Island which according to Raper is in 40° 48′ 30″ E.

On the 3rd of December a fiery Norther, the first decided breeze from this quarter and probably the harbinger of the approaching N.W. monsoon, carried us to Mozambique.

[Seamen will not fail to note the important information of Captain Nolloth on the St. Lazarus bank—as well as that obtained by him; as the limits of this shoal have not yet been ascertained even by the Portuguese, although the coast is so frequently navigated by them.—Ed.]

The reader will please to correct the following *errata* in last number.

Page 73, for the last two lines substitute the following:—"had resorted on being banished from Johanna by Selim, who deposed his predecessor. The Queen of Mohilla had married an adventurer—"

Page 75, line 1, introduce the word "by" before "the name," and omit the words "being unknown."

Page 76, line 27, for "*chefs d'œuvres*," read "*chefs d'œuvre*."

(To be continued.)

Bombardment of Canton.

Niger, at Canton. Nov. 14th, 1856.

Sir,—In the sixth paragraph of my general letter, No. 91, of the 15th ult., I alluded to the Chinese authorities having a few days previously forcibly seized the native crew of a lorcha under English colours, and that I had demanded redress.

I have now the honour to report, for the information of the Lords Commissioners of the Admiralty, that on the 8th of October the lorcha *Arrow*, with a colonial register from the Governor of Hongkong, was boarded while at anchor at Canton by a Chinese officer and a party of soldiers, who, notwithstanding the remonstrances of the master, an Englisman, seized twelve of her crew, bound and carried them away, and hauled down the British flag. Her Majesty's Consul afterwards remonstrated with the officer who had seized the men, but without effect.

This outrage was immediately brought to the notice of the Imperial High Commissioner by Mr. Parkes, her Majesty's Consul, who required the twelve men to be returned to the *Arrow* by the same officer who had carried them away; that an apology should be made, and an assurance given that the British flag should in future be respected. Their Lordships will, however, observe, on perusing the documents which accompany this dispatch, that, although the twelve men were eventually sent back, it was not in the public manner in which they had been carried away, and all appearance of an apology was pointedly avoided.

On the 11th of October this unpleasant occurrence was officially reported to me by Sir John Bowring, her Majesty's Plenipotentiary in China, and his Excellency suggested that the seizure of an Imperial junk would probably produce the desired reparation. I accordingly directed Commodore the Hon. C. G. J. B. Elliott, of H.M.S. *Sybille*, senior officer in the Canton river, to carry out Sir John Bowring's suggestion, and I despatched the *Barracouta*, steam sloop, and *Coromandel*, tender, to afford him the means of doing so. A junk was seized,* but it led to nothing. I then sent H.M.St.F. *Encounter* and *Sampson* to join the Commodore, (the former to lie off the factory,) in the hope that the presence of such an imposing force would show the High Commissioner the prudence of complying with our demands; but his Excellency appeared determined on resistance.

At this period Mr. Parkes proceeded to Hongkong to consult with Sir John Bowring and myself as to the best measures of compulsion to be adopted, and we all considered that the seizure of the defences of the city of Canton would be the most judicious, both as a display of power without the sacrifice of life and of our determination to enforce

* This vessel was afterwards proved to be private property, and was therefore released.

redress,—experience of the Chinese character having proved that moderation is considered by the officials only as an evidence of weakness.

I immediately moved the *Calcutta* above the Bogue forts, as high up as her draught of water permitted, and on the morning of the 23rd of October proceeded on board the *Coromandel* steam-tender for Canton, with the *Sampson* and *Barracouta* in company, and the detachments of Royal Marines and boats' crews of H.M.S. *Calcutta*, *Winchester*, and *Bittern*, and the boats of the *Sybille*, with the Commodore. On approaching the Blenheim Reach, I diverted the *Sampson* and a portion of our force up the Macao passage, to prevent the Chinese from stopping up the channel, and to capture the Blenheim Fort. I then went on with the *Coromandel* and *Barracouta* to the Four Barrier Forts, about five miles below the city. Anchoring the two steamers above the forts, I despatched the boats and took possession of them. An ill-judged attempt at resistance from two of the forts, which fired on our ships and boats, resulted in the death of five Chinese soldiers. There were about 150 guns, from one foot bore to four-pounders.

I now directed Comdr. Fortescue, in the *Barracouta*, to follow the *Sampson*, and having spiked the guns, destroyed the carriages and ammunition, and burnt the buildings in the fort, I proceeded to Canton, where I arrived at 2h. p.m., and learnt that the boats from the *Sampson* and *Barracouta* had taken quiet possession of the Blenheim Fort, and also of Macao Fort, a very strong position on an island in the middle of the river, mounting 86 guns, which I have garrisoned, and shall retain for the present.

Her Majesty's Consul, by my direction, immediately informed the High Commissioner of my arrival, and of the aggressive measures which he had compelled me to take in consequence of his refusal to redress the wrong committed by his officers; also that I should continue such proceedings until reparation should be made. His Excellency's reply was very unsatisfactory.

On the morning of the 24th, I landed a portion of the Marines to aid the detachments from the *Sybille* and *Encounter*, already at Canton, in the protection of the factory, and proceeded in the *Coromandel* to join the *Barracouta*, off Macao Fort. Then, at a preconcerted signal, the Bird's Nest Fort, mounting 35 guns, and a small fort opposite the city, which might have annoyed the factory, were taken without opposition, as were subsequently the Shamin Forts, at the head of the Macao Passage. The whole of the guns were rendered unserviceable, and the ammunition destroyed.

As the state of affairs now appeared so unpromising, I considered it advisable to take effectual measures for the protection of the factory. The remainder of the Royal Marines and a body of small-arm men were, therefore, landed; advanced posts and field-pieces were stationed at all the assailable points; barricades thrown across the streets; and the boats kept vigilant watch, to guard against the approach of fire-rafts and attacks by water. The execution of this important duty I entrusted to Capt. W. K. Hall, C.B., my flag-captain, whose zeal and activity throughout the whole of the operations I cannot too highly

commend. The Royal Marines were in charge of Capt. P. C. Penrose, R.M., of H.M.S. *Winchester*, who showed great ability and promptitude.

Capt. Cowper, Royal Engineers, who had been sent from Hongkong to afford me the benefit of his professional experience, was of great assistance in pointing out and remedying the weak points in our position.

A body of American officers, seamen, and marines, under Comdr. Foote, of the U.S. corvette *Portsmouth*, provided for the interests of the American community.

On the 25th I took possession of the Dutch Folly, a fort with 50 guns on a small island opposite the city, where I afterwards placed a body of 140 officers and men under Comdr. Rolland of the *Calcutta*. All defence of the city being now in our hands, I considered the High Commissioner would see the necessity of submission, and I directed Mr. Parkes to write and state that when his Excellency should be prepared to arrange the points in dispute in a satisfactory manner I would desist from further operations; but the reply did not answer my expectations.

An attack was made at 12.30 p.m. by a body of troops, supported by a much larger force, which occupied the streets in the rear. Mr. Consul Parkes was on the spot at the time and warned them to retire, but ineffectually. The guard of Royal Marines, in charge of Capt. Penrose, then drove them back, with a loss as we understood of fourteen killed and wounded.

The 26th, being Sunday, was observed as a day of rest.

Early on the morning of the 27th I caused another letter to be written to the High Commissioner, to the effect that as satisfaction had not been offered for the affair of the *Arrow*, I should resume offensive operations; and his Excellency having, by his illegal measures and determination to refuse reparation, produced this display of force, I concurred in opinion with Sir John Bowring that this was a fitting opportunity for requiring the fulfilment of long-evaded treaty obligations; and I therefore, in addition to the original demands, instructed Mr. Parkes to make the following communication:—

"That, to prevent the recurrence of evils like the present, which have been occasioned by the disregard paid by the Imperial Commissioner to the repeated applications for redress and satisfaction made to him by letter in the matter of the *Arrow* by Her Majesty's Plenipotentiary and the Consul—writing, in consequence of the closing of the city to foreigners, being the only means of communication—I demanded for all foreign representatives the same free access to the authorities and city of Canton (where all the Chinese high officials reside) as is enjoyed under treaty at the other four ports, and denied to us at Canton alone."

No reply having been made, I determined to open fire on the High Commissioner's compound (the Yanun) a large space of ground within the old city, surrounded by a high wall, which contains his Excellency's residence, and is consequently Government property. Accordingly, at one p.m., the first shot was fired from the 10-inch pivot gun

of the *Encounter*, and, at intervals of from five to ten minutes, the fire was kept up from that gun till sunset. The *Barracouta* at the same time shelled the troops on the hills behind Gough's Fort, in the rear of the city, from a position she had taken up at the head of Sulphur Creek.

A proclamation was this day issued, under the High Commissioner's own seal, and placarded publicly, offering a reward of 30 dollars for the head of every Englishman. One of the originals is in possession of H.M. Consul. Nearly all the Chinese servants now quitted the factory.

A detachment of 18 gunners of Royal Artillery, under Capt. Guy Rotton, joined me. I stationed them at first in the Dutch Folly, where they performed good service.

No change having taken place in the aspect of affairs from the proceedings of the 27th, I resumed operations on the following day from the Dutch Folly, where I placed in position two of the *Encounter's* 32-pounder guns. I had previously given the fullest warning to the inhabitants in the vicinity to remove their persons and property, (Capt. Hall having landed twice for that purpose,) in which occupation they were engaged during the whole of the night. I began firing shortly after noon, my object being to open a clear passage to the wall of the city. This was materially furthered by a conflagration of a large portion of the houses in our line of attack, which opened the wall to our view. I ceased firing at sunset.

Capt. the Hon. Keith Stewart, of H.M.S. *Nankin*, joined me on the morning of the 28th, with 140 of his crew, and two field-pieces. 65 of the crew of the U.S. corvette *Levant*, also arrived to protect American interests, making their total force 140 officers and men, under Comdrs. Foote and Smith.

Our firing re-opened earlier on the morning of the 29th than was intended, owing to an appearance as if guns had been mounted on the city-wall during the night. At 11h. a.m. Comdr. W. T. Bate and Mr. C. G. Johnson, Acting Master, late of the *Bittern*, having ascertained, by personal examination, and at considerable risk, the practicability of the breach, the force particularised in the enclosed return was told off for the assault, under the command of Commodore the Hon. C. Elliot.

The landing was effected at two p.m., and the men, having formed, were at once led to the attack, (accompanied by two field-pieces in charge of Lieuts. Bushnell and Twysden,) the seamen by the Commodore, Capt. the Kon. Keith Stewart, and Comdrs. Bate and Rolland; the Royal Marines by Capts. P. C. Penrose and R. Boyle. The way was most gallantly shown by Comdr. Bate, whom I observed alone, waving an ensign on the top of the breach. The parapet of the wall was immediately afterwards covered with the marines and seamen, who, diverging to the left and right, had within ten minutes complete possession of the defences between two of the gates, with the field-pieces in the breach.

Capt. Penrose, on gaining the wall, hastened to the gate on the right, on which he hoisted a small flag, to show his position to Capt.

Hall, who then promptly landed with the boats' crews of the *Calcutta* and *Barracouta*, and, having pushed his way through the streets to the city-gate, quickly effected an entrance, with the assistance of Comdr. Fortescue, Lieut. G. C. Fowler, my flag-lieutenant, Capt. Rotton, Royal Artillery, and four gunners of that corps.

The gate was then blown to pieces, and the archway partially destroyed, by two large charges of gunpowder.

Little opposition was offered by the Chinese troops (though the guns were loaded on the parapet) beyond keeping up a scattered and desultory fire from the streets and houses, by which we sustained a loss of three private marines killed and 11 men wounded. The wounded were conveyed to the Dutch Folly, where they received every attention from Dr. C. A. Anderson, Staff-surgeon of the flagship, and Assistant-surgeon Newton of the *Bittern*.

I had the satisfaction of seeing the city through the gate soon after its passage had been secured, and, accompanied by the Commodore, H.M. Consul, and a portion of the force, I visited and inspected the house and premises of the High Commissioner. We re-embarked at sunset, and the officers and men were returned to their respective quarters; my object, which was to show his Excellency that I had the power to enter the city, having been fully accomplished.

Before the landing took place I assembled the officers, and urgently impressed upon them (as I had previously done by written order) the necessity of restraining the men from molesting the persons and property of the inhabitants, confining warlike operations against the troops only; and I have pleasure in bearing testimony to the forbearance and good conduct of the seamen and marines. No straggling took place, and when the orders were given to re-embark, the men returned to their boats with regularity and dispatch.

About five p.m. a second fire broke out in the suburbs, bordering on the first one, which consumed a large number of houses.

At daylight on the 30th it was discovered that the breach had been filled up during the night with sandbags and timber; a few shots, however, soon cleared it again, as well as on the mornings of the 31st and the 1st of November.

I now judged it expedient personally to address the High Commissioner, in the hope of inducing him to accede to our demands. I pointed out that the steps which had been taken were occasioned by his refusal to afford reparation in the case of the *Arrow*; that the city of Canton was at my mercy; and that it was in his power, by an immediate consultation with me, to terminate a state of affairs so likely to lead to the most serious calamities. His Excellency's reply consisted of a *resumé* of his letters to Mr. Parkes; he defended his conduct, and intimated that he had already appointed his deputy to consult with me. (This was an officer of very inferior rank to my own.)

I sent an immediate answer and informed the High Commissioner that unless I received an explicit assurance of his assent to what I had proposed I should at once resume operations. I added that the deliberation with which I had so far proceeded should have convinced his

Excellency of my reluctance to visit the consequences of his acts on the inhabitants of Canton, but that should he persist in his present policy he would be responsible for the result, and would learn, when too late, that we had the power to execute what we undertook. His Excellency rejoined on the 3rd of November, and, after recapitulating his former correspondence, avoided touching on the subject of our demands.

Fears being entertained that the Chinese would set fire to the houses round the factory to insure its destruction a party was employed for three days in pulling down such houses as were necessary to our safety, leaving an open space between the town and the factory. One of the rows of houses, called "Hog Lane," penetrated the whole length between two of the factories, and had long been a source of disquiet to the mercantile community. The officer commanding the troops at Hongkong subsequently sent me a company of gun Lascars to clear away the *débris*.

Capt. Thomas Wilson arrived on the 31st with 90 officers and seamen of H.M.S. *Winchester*.

As the Chinese boats continued to furnish supplies to our ships during the operations, I considered it of great importance to inform the public of the nature of our grievances, the more particularly as various placards had been issued by the government with a view to excite enmity against us. I therefore had copies of my letters to the High Commissioner printed, and Capt. Hall distributed them from his boat. They were eagerly sought for. Mr. Parkes also promulgated a *précis* of the whole affair.

At eleven o'clock in the morning of the 3rd of November, I commenced a slow fire on the Government buildings in the Tartar city, and at Gough's Fort, from the *Encounter*, *Sampson*, and the Dutch Folly, and continued it till five p.m. At midnight an explosion took place in a small boat inserted under the platform of the club-house, where the seamen and marines are lodged. It was evidently intended to blow up and set fire to the building. Fortunately it did no damage beyond slightly burning one of the sentries. All the Chinese boats which had heretofore been allowed to remain unmolested round the factory sea-wall, were now driven away.

Being most anxious to avoid the necessity of further coercive measures, I again addressed the High Commissioner on the 3rd; but, as he could not be brought to entertain the justice of our demands, I was compelled to re-open fire on the 4th, and again on the 5th, from one of the *Sampson's* 68-pounders, mounted in the Dutch Folly. It was principally directed at a fortification crowning a hill in the rear of the city, hitherto considered impregnable; but, although an extreme range, several shells burst within the works, the effects of which must have undeceived the authorities as to their supposed security in that position.

On the 5th I received information that an attack was intended to be made on our ships and the factory, and that twenty-three war-junks were at anchor below the Dutch Folly, protected by the French Folly

Fort, mounting 26 heavy guns. Capt. Hall having ascertained the correctness of the statement about the junks, I directed Commodore Elliot to take the *Barracouta*, *Coromandel*, and the ships' boats, and either disperse or capture them. The narrow channel having been buoyed by Comdr. Bate, at daylight of the 6th the *Barracouta* proceeded, followed by the *Coromandel* with a detachment of Royal Marines, and towing the ships' boats. Comdr. Fortescue anchored his ship about 800 yards above the French Folly, and within 200 yards of the nearest junks, which were perfectly prepared for attack, and drawn up in line of battle. As the Chinese were observed training and pointing their guns, the *Barracouta* was obliged to open fire from her bow pivot-gun to check their deliberate arrangements, before her broadside could be brought to bear. A most animated fire was returned instantly by the junks and forts from more than 150 guns, which was maintained with great spirit for at least thirty-five minutes; but when the ship was sprung, her grape and canister, with the aid of the boats in charge of Capt. Thos. Wilson, which, pulling in, opened a most effective fire, soon drove the people out of the junks. The *Barracouta* was then enabled to give her undivided attention to the fort, and, having silenced it, Capt. Hall pulled in and took possession. The guns and ammunition were destroyed. Two 32-pounders in the Dutch Folly, whence I had the opportunity of witnessing the engagement, greatly assisted the *Barracouta* by the excellence of their fire.

Many of the junks being aground, and others sunk by our shot, they were all consequently burnt except the Admiral's ship, which was brought off. Only two escaped, and one of them was afterwards burnt by Captain Hall.

I was much pleased with the conduct of all the officers and men engaged on this service, especially of Commander Fortescue, his officers, and ship's company, under the heavy fire to which they were exposed. Commander Fortescue mentions the gallant conduct of Lieut. W. K. Bush, Senior Lieutenant of the *Barracouta*. The Commodore has also brought to my notice the cool courage of Lieut. H. H. Beamish, of my flag-ship, in carrying out an anchor during the heaviest of the fire to enable the *Barracouta* to spring her broadside.

I am happy to state that our loss only amounted to one seaman, of the *Calcutta*, killed in Lieut. Beamish's boat, and four men wounded on board the *Barracouta*.

H.M. steam-ship *Niger* arrived on the 7th from England; and officers and seamen from the French frigate *Virginie* came up to the factory to protect their interests.

At 4h. a.m. of the 8th a bold attempt was made to destroy our ships with fire-rafts. Four were sent down by the tide; one was anchored close ahead of the *Barracouta* and, but for the promptitude with which her cable was slipped, might have been productive of disastrous consequences. One raft burnt at her anchor, the others drifted clear to leeward. To prevent a similar occurrence I caused a line of junks to be drawn across the river, both above and below the squadron. One of the junks in the upper boom was burnt by a stinkpot, thrown

on board on the morning of the 12th, and two fire-boats exploded alongside the *Niger* at 9h. a.m. on the 13th. This led to all boats, with which the river is thronged, being ordered beyond the lines of junks.

Between the 8th and 12th of November the Consul received three deputations from the principal merchants and gentry of Canton, who seemed anxious to bring about a settlement of the present disastrous state of affairs. They were obliged to admit that our demands were not unreasonable; but that such was the inflexibility of the High Commissioner's character they feared it would be useless to attempt to alter his expressed determination not to admit our representative into the city. They denied the accusation made by the High Commissioner that he had been compelled by clamour to offer a reward for our heads, and loudly expressed their disapprobation at it. Even if they have the disposition to settle this dispute, in our favour I fear they lack the power to do so.

Strenuous efforts having been made, without effect, to compel a compliance with our demands, Sir John Bowring, on the 8th, submitted that the next step should be the destruction of the Bogue Forts. Concurring in this opinion, I informed the High Commissioner that unless he submitted within twenty-four hours I should resume hostile measures. I waited more than the stipulated time, and proceeded in the *Encounter* below the Bogue Forts on the afternoon of the 11th, leaving the *Sampson* and *Niger*, with Commodore Elliot, to protect the factory. I found there the *Calcutta* (in which I re-hoisted my flag), *Nankin*, *Barracouta*, *Hornet* (just arrived from Shanghai), and *Coromandel* tender.

On the following morning I sent a summons to the Chief Mandarin to deliver up the forts till the Viceroy's conduct could be submitted to the Emperor of China, pledging myself that the forts should remain uninjured and be given back when the present differences shall be terminated. This being refused, the squadron then attacked the two Wantung Island forts from the Bremer Channel side, and they were taken possession of by boats and Royal Marines after a considerable, though ill-directed resistance, of about an hour. These forts were fully manned, had upwards of 200 guns mounted, and were found stronger than when captured in 1841. The Chinese troops stood to their guns up to the moment our men entered the embrasures. The Mandarins had boats in readiness to facilitate their own escape, leaving their unfortunate followers, who rushed into the water until they were assured of their safety by the efforts made to save them. They were afterwards landed on the main.

One boy killed and four men wounded, on board the *Nankin*, were happily the extent of our casualties, though stinkpots were freely thrown at those who first entered the forts.

On the 13th the Annunghoy Forts, on the opposite side of the Bogue entrance, mounting together 210 guns, were similarly attacked and taken, and, though some resistance was offered, I am thankful to state without a casualty on our side.

The command of the river being now in our hands, I have no operation in immediate contemplation beyond the security and maintenance of our position; and it will remain with H.M. Government to determine whether the present opportunity shall be made available to enforce to their full extent the treaty stipulations which the Canton Government has hitherto been allowed to evade with impunity.

I have to express my entire approval of the conduct of the officers and men engaged in the series of laborious operations I have felt it my duty to undertake. From the Commodore, Captains, and Commanders I have received the most prompt and efficient assistance, and their example has influenced the officers and men. I have already mentioned the officers who have brought themselves prominently into notice.

The health of the men is remarkably good, and the squadron continues in an efficient state for any further service.

During the whole of my proceedings I have received the most cordial support of the British and foreign communities, from their confidence that future benefit must be the result. H.M. Consul has rendered me the most valuable assistance, particularly from his intimate acquaintance with the Chinese language.

My thanks are especially due to Commanders Foote and Smith, commanding the United States' naval forces, for the good order and harmony they have so largely contributed to preserve during the present crisis.

I have endeavoured, as briefly as its high importance will permit, to lay before their Lordships every particular connected with my proceedings. The original cause of dispute, though comparatively trifling, has now, from the injurious policy pursued by the Imperial High Commissioner, assumed so very grave an aspect as to threaten the existence of amicable relations as regards Canton.

Though I shall continue to take steps, in conjunction with H.M. Plenipotentiary, in the hope of being able to bring matters to a successful termination, I shall be most anxious to receive the instructions of H.M. Government on this important question.

I enclose a copy of a notice I have had issued to the British community by H.M. Consul.

I have, &c.,

M. Seymour,

Rear-Admiral, Commander-in-Chief.

Ralph Osborne, Esq., M.P., Admiralty, London.

Extract from a letter written by an officer of the "Barracouta."

On the 21st of October Sir J. Bowring delivered the affair into Admiral Seymour's hands to bring Master Chinaman to a sense of his situation, at the same time informing the said Viceroy that if he did not comply with our demands in forty-eight hours from the receipt of that communication, active and decisive measures would be resorted to.

Accordingly, on the 23rd, *Barracouta* and *Coromandel* (a small steamboat Admiral's tender) proceeded, with boats of *Winchester* and *Sybille*, up the junk channel, and, after a little cannonading, succeeded in destroying all the forts and guns (eighty-five in number) below Dutch Folly. At noon we again moved down the river, and round by another channel (Blenheim Reach) to the barrier below Macao Fort, destroying the forts (two in number, forty-five guns) on our way. On the following morning we proceeded over the barrier and up the Macao Reach to Canton, taking possession of Macao Fort and destroying the Bird's-nest and Shung-wing batteries. The *Encounter* in the mean time had taken the Dutch Fort and the one abreast of the factories (or Tough Hongs), thus depriving our obstinate friend in one day of all his river defences.

The Admiral now informed the Viceroy of his proceedings,—at the same time allowing him twenty-four hours for further consideration.

On Monday the 27th, nothing satisfactory having occurred, we moved up to Sulphur Creek and commenced shelling the encampments and forts behind the city; *Encounter*, from her anchorage below the factories, dropped a shell occasionally within the walls, destroying his Excellency's residence and doing considerable damage. At the same time two guns from the Dutch fort opened fire, to make a breach in the city wall, and amused them in that quarter, but still the old fellow would make no concession,—on the contrary, he issued placards offering from forty to three hundred dollars for the head of any barbarian.

On the 29th the marines and small-arm men of the squadron landed (about three hundred), and assaulted the city. They entered the city breach with little opposition, although 57,000 Tartar troops are said to be within the walls, and after blowing up one of the principal gates, tearing down the palace, &c., returned to the boats, as of course we had not sufficient force to keep possession even of a part of the city. The casualties on the occasion were three killed and fifteen wounded. I believe there were also two Americans taken, whose heads are now hanging on the wall near the breach. Poor fellows! they no doubt were tortured dreadfully and paid dearly indeed for attempting to obtain plunder.

Since the 29th until yesterday, when we were shelling the place for two hours, little has been done, except pulling down houses, to prevent fire, in the vicinity of the factories.

The 6th of November will indeed ever be impressed upon my memory, and held sacred to that Almighty Providence which watched over and protected both me and others from sudden death and injury.

I must now inform you that at daylight this morning we moved from our anchorage off Shung-wing down the river, for the purpose of destroying twenty-three war junks and a fort, called French Folly. The junks were moored in lines and perfectly ready with their guns, seven to nine large ones, all on one side, each commanded by a Mandarin who had promised to exterminate the barbarians from the face of the earth. The battery, mounting about twenty-five guns, was equally (as we soon discovered) prepared to give us a warm reception.

At 7h. a.m. we anchored about 250 yards off the junks, and, as the gentlemen were observed training their pieces, immediately opened fire on them,—when, lo! such a tremendous shower of iron, of every shape, fell around and among us (for the Chinese load their guns to the muzzle with nails, barbed pieces of iron, and shot of all sorts and sizes) that actually the water was one sheet of foam around and splashing even to our upper deck.

Amid this dreadful shower our men behaved admirably and, as we were anchored, I did my best to cheer up the lads working our 84-pounders to the work of destruction not of self-preservation, to fire as quickly and precisely as possible. In thirty-five minutes we succeeded in stopping the fire of the junks, and driving the crews on shore; when we directed our attention undivided to our friends in the fort, who were in a few minutes also driven from the walls and guns, and forced to seek their safety in flight. The boats of the squadron then left and took possession, destroying the battery, guns, &c., and burning the war junks.

In the encounter we had one killed and four wounded—two dangerously and two slightly. That so few are hurt is surely a miracle and will ever be remembered by all engaged as such. Our hull is pierced in several places by twenty-eight large shot and innumerable small ones, and masts, yards, rigging, and boats severely damaged.

At 4h. a.m. of the 8th we were awakened from our slumbers by fire-rafts being sent down among us, and one large one especially, for our amusement. I am happy to say no injury was done, and now all traffic on the river is stopped and the channel closed by junks seized for the purpose. The Chinese must have a great affection for the poor *Barracouta*, as they have offerred 50,000 dollars for her destruction; but as there is little danger of their being called upon to pay the money, it is a safe offer.

Nov. 13th.—Yesterday and to-day we have been engaged with the forts North and South, Wontung (Boca Tigris) and Anunghoy. The former are two islands, well fortified round; the latter are batteries, well erected, on the opposite or East side of the river. In all, I should say (together with Tycocktou Forts, on West side of river, taken yesterday) the guns mounted were at least three hundred.

Yesterday, at 9h. a.m., we towed *Calcutta* into position for attacking South Wontung, while *Encounter* placed *Nankin* so as to engage the North Wontung and Tycocktou Forts, assisted by *Encounter*, *Hornet*, and ourselves. At 10h. 45m. we commenced, and continued with little cessation until 1h. p.m.; when we silenced their fire, landed our marines and small-arm men, and, after a little firing, obtained possession. A great many prisoners were taken, while attempting to swim away, by *Coromandel*. How many were killed I have not heard. On our side the casualties were one killed and three wounded, all of *Nankin*.

This morning we attacked Anunghoy, and after an hour's firing succeeded in silencing their guns. At 1h. p.m. we were in possession, and are now quietly at anchor off there.

Thus again our Heavenly Father has protected me in the hour of battle—when the shots were flying and hissing around His mighty arm preserved me. I humbly trust I may prove thankful and not make bad use of the life thus preserved.

Yesterday and to-day, although smart firing, was nothing when compared to the attack on the junks. Then we were alone, and all pieces were brought to bear on the poor *Barracouta*; now it has been otherwise, and our loss but small.

Langstone Harbour.

Returning to this subject, and beginning at the beginning, we may presume, of course, that it is pretty generally known by the intelligent part of the community that Portsea Island is flanked by two harbours of considerable magnitude—one the harbour of Langstone, the other the harbour of Portsmouth. We believe, however, that it is by no means so generally known that Langstone Harbour holds out to the enterprise of the country a number of very extraordinary advantages, which, until now, appear to have been altogether overlooked.

It has undoubtedly long been felt that an enterprise of the character here intimated has been growing more and more glaringly requisite, because of the astonishing increase of late years visible in the merchant traffic along the southern coast of England. In consequence of the absence of any such undertaking, vessels have been hitherto compelled to incur, most unnecessarily, the peril and expense of the voyage up Channel. Supposing there had been manifested somewhat earlier a sagacity capable of appreciating this great requirement—a sagacity such as that which appears to be at length visible among the projectors of the scheme about to be referred to—none of the dangers attendant upon the navigation round by the Nore and up the river Thames would have been necessitated, and thereby the country would have been spared a very needless and very considerable expenditure.

That the perils of that navigation are really remarkable we know, surely, by this time from a rather mournful experience. Indeed, it has recently been shown from the incontestible evidence of the most intelligent underwriters at Lloyds, that simply between 1837 and 1843, merely between the Isle of Wight and London, 449 vessels lost their cables and anchors, were run foul of, were partially dismasted by bad weather, or were otherwise very seriously damaged. The same authority asserts, moreover, that in the same interval of seven years, between the same points, merely between the Isle of Wight and London, 560 vessels (although they were got off afterwards) ran aground; 260 vessels were totally wrecked or foundered.

the crew and passengers being preserved; 56 vessels were utterly lost, together with the whole or part of their crews and passengers. An aggregate of 1,375 is thereby indicated as the total number of casualties during only seven years—namely, from 1837 to 1843—within the comparatively short distance lying between the Isle of Wight and the metropolis!

According to the document from which these particulars are extracted, it would appear likewise that, besides a terrible loss of life, property to the value of from £400,000 to £500,000 were in a similar manner sacrificed during a period of merely eighteen months, dating from the January of 1849 to the June of 1850, between London and Dungeness! While it has actually been asserted that within the earlier half of 1850, no less than eight vessels were lost between the capital and Southampton with every soul on board, numbering some 500 in all, whose lives were thus miserably sacrificed! All this, remember, from the absence of any adequate docks on the southern line of coast, preventing the necessity of this wholesale resorting to the Channel and the Thames navigation. Everybody who has at all reflected upon the matter, understands now clearly enough the existence of this necessity, its astonishing importance, and the truth that by its effectual removal we should, no matter what might be the expenditure in the outset, be ultimately and very wonderfully economising in time, in life, and in money—the three great "raw materials" in the carrying on the mercantile undertakings of the British Empire, and, sooth to say, in the very development of the grand labours of modern civilization.

Satisfied upon this point, we were of course compelled, as a sagacious community, to consider well beforehand the best locality or site for the carrying out of the projected enterprise. Which should be the southern port of the United Kingdom?

Reflection has only confirmed the wiser promoters of the achievement in the opinion that, of all places along that part of our coast, the best, the fittest, the most convenient in position, and the most admirable in capacity, is the harbour of Langstone. From one extremity to the other of these coasts—from the Nore to the Land's End—no more suitable spot,—no spot, in truth, more exactly fitted for the project could by any possibility whatever have been selected.

Langstone, remember, is, as we have already observed, in immediate proximity with the vast naval depot of Portsmouth! Its anchorage is admirable, its basin is of noble dimensions, its entrance—defended by Cumberland Fort on the western side, or the side nearest Portsmouth, and by a martello tower on the eastern side, namely on Hayling Island—presenting a marvellous protection against the forces of an enemy, together with an equally estimable facility for the passage in and out of our own vessels, no matter what their burthen. Besides all these advantages—sufficient of themselves to command a favourable regard to the originators of the intended achievement—Langstone is distant only sixty-six miles from the metropolis. For all practical purposes therefore in mercantile enterprise, it may be re-

garded as virtually in as close contiguity to the capital as even Blackwall. It is distant, we repeat, from our metropolitan docks merely sixty-six miles, and those sixty-six miles capable of being abbreviated by railway so as to admit of the most rapid intercommunication. Langstone has, in fact, been very happily called—and will absolutely constitute, in truth, when once completed—*the out-port of London!*

But our limited space obliges us again to reserve the remainder of these remarks for our next.

The Want of a Harbour of Refuge at Redcar.

It is now twenty-four years* since the *Nautical Magazine* showed that a deep water harbour (one essential for a refuge harbour) should be made on the North-Eastern coast of England, at Redcar, and frequently since then have the lists of wreck borne fearful evidence of the necessity for it. In the same interval has a dry harbour been formed at Hartlepool, incapable of receiving the fleets which are occasionally caught off that coast, too frequently embayed and driven on shore by gales from the North-East and East-North-East.

The gale of the 4th of last month has been more than usually fearful in its results. Lloyd's List furnishes evidence of not less that twenty vessels *having been seen to founder with all hands between Scarborough and Warkworth,*—in vain attempts to work off the shore or ride out the gale at anchor. Nine ships' crews were lost in the Tees Bay, within sight of Redcar. The last gale was dead on the coast, and made the following wrecks of ships:—at or near Scarborough, 10; Robin Hood's Bay, 6; Runswick Bay, 8; Tees Bay, which includes Redcar and Hartlepool, 38; at or near Sunderland, 10; near the Tyne, 7; Blyth, 3; Warkworth, 3; and on the remaining length of coast to North Sunderland Point, 8; making a total of ninety-three ships wrecked in a single gale on only about one hundred miles of coast.

The loss of life cannot be estimated at less than one hundred and sixty seamen. How many more suffered on the dark morning of the 4th, when the gale was at its height, or the night of that eventful day, remains yet to be told! The crews of above seventy ships were saved by the different life-boats stationed on the coast.

In the *Shipping Gazette* of the 9th were some just remarks on the neglect which the projected Harbour of Refuge at Redcar has experienced; but we must remind our contemporary that there has been no neglect in reference to the surveys of this coast, which were long since sufficiently completed by the late Capt. Wm. Hewitt to show that Redcar would afford the refuge so much required.

* Nautical Magazine, Feb., 1833.

Preservation of Life from Shipwreck.

A meeting of the Royal National Life-boat Institution was held at its house, John Street, Adelphi, on the 5th of February; Thomas Chapman, Esq., F.R.S. in the chair. We also observed present—Adml. Cator, Gen. Blanshard, C.B., Capt. Stephenson Ellerby, Capt. Hall, R.N., C.B., Capt. Heslop, R.N., George Lyall, Esq., James Peake, Esq., and Capt. Ward, R.N., inspector of life-boats to the institution.

Mr. Lewis, the Secretary, read the minutes of the previous meeting.

The valuable services rendered by the life-boats of the institution and other bodies in rescuing shipwreeked crews during the awful gales that swept the coast during the beginning of last month were reported to the meeting, and are as follows:—

The Hauxley, Northumberland life-boat, on Peake's plan, saved the crew, eleven men, of the brig *Sophie*, of Oporto; on the same day, this life-boat also rescued the crew of five men from the schooner *Georgina*, of Inverness.

The Scarborough new life-boat, also on Peake's plan, saved the crews, consisting of twenty-six persons, of the brig the *Thompsons*, of London; the brig *Northumberland*, of Whitby; and the brig *Wilsons*, of Shields. The institution voted its silver medal to Thomas Clayburn, master of this life-boat, in testimony of his repeated services in saving life during the last forty years. In addition to a local reward, the society also voted to him and his gallant crew, the sum of £5 10s.

The Filey life-boat rescued the crew of nine hands of the brig *Ratcliffe*, of Whitby.

The Lowestoft life-boat, manned by the intrepid Capt. Joachim, R.N., and nineteen men, saved the crew of eight men of the brig *Tennant*, of Stockton, wrecked on the Newcome Sands. The second service clasp was voted by the institution to Capt. Joachim, who, for his previous gallant exertions had received two medals from the society.

The Lytham life-boat assisted in bringing the flat *Turner* and her crew from the dangerous Horse Bank Sands, near Liverpool.

The Rhyl tubular life-boat rescued four men from the *Temperance*, of Belfast.

The Redcar life-boat saved the crew of nine men of the barque *Emma*, of North Shields.

The Walmer life-boat, on Peake's plan, rescued fifteen persons from the barque *Reliance*, of London. Some members of the Royal Thames Yacht Club had generously contributed £160 to the National Life-boat Institution towards the cost of this life-boat.

The Ramsgate, Broadstairs, and Shields life-boats had also performed valuable services by rescuing shipwrecked crews from many wrecks on that disastrous occasion.

The gallant crews of the above-named life-boats have all received pecuniary rewards for their praiseworthy services, either from the National Life-boat Institution or elsewhere.

These life-boat services all round the English coast most satisfactorily show how much can be done in saving life from shipwreck by well-directed efforts, and it rests with the British public to say if these life-boats are to be increased on the coast. A noble example in this respect was reported to the meeting, of a gentleman named William M'Kerrel, who munificently offered the institution £180 towards the founding of a first-class life-boat establishment.

The silver medal of the institution was also presented to Lieut. Thomas Young, chief officer of the coast guard at Atherfield, Isle of Wight, in acknowledgment of his gallant services and able seamanship, in saving the schooner *Red Port*, of London, and her crew, when off that island, in a distressed state, on the 4th ult. This gallant officer has on previous occasions distinguished himself in rescuing life from shipwreck.

The medal of the institution and £2 were also voted to Mr. Henry Wyrill, of Scarborough, for his gallant conduct in rescuing, with his coble, manned by himself and five men, in a fearful sea, and at the imminent peril of his life, the crew of the schooner *Elizabeth*.

Many other pecuniary rewards were voted to boatmen and others, in consideration of their laudable services during the late gale in rescuing life from shipwrecks.

The institution decided to place forthwith a new life-boat at Slaton Carew, and orders were given for the erection of several life-boat-houses on various parts of the coast.

The effects of the late awful gale have been most severely felt on the coast. It appears from returns made to the Board of Trade, that the number of vessels wrecked were about 340, and the lives lost therefrom about 186. But it is a most gratifying fact that the number of lives saved on that disastrous occasion, chiefly by life-boats and the life-preserving apparatus, was 662.

The Earl of Ellesmere, K.G., was elected a Vice-President of the Society, in virtue of his munificent contribution to the funds of the Institution. The Bishop of London was also elected to the same office, and Capt. Sulivan, R.N., C.B., and Capt. Robertson, R.N., of the Board of Trade, were elected members of the Committee of Management.

The proceedings then closed.

Life-boats for the Coast.—The National Life-boat Institution for the Preservation of Life from Shipwreck has decided to place life-boats on every point on the coast where it can be shown, first, that one is wanted in consequence of the frequency of wrecks in the locality; secondly, that an efficient crew can be found to man the boat; thirdly, that some local contributions will be raised to assist to pay

for the erection of a boat-house, and the permanent maintenance of the life-boat station. The cost of a life-boat establishment, including boat, transporting carriage, and boat-house, is between £300 and £400. The first and most important step has been secured by this institution, viz., a safe and powerful life-boat. The next step now is to build a sufficient number of such boats, place them where required, and provide for their supervision and maintenance. In the accomplishment of a work of such benevolence and national importance, the Royal National Life-boat Institution surely need have no misgivings as to funds being forthcoming.

Crews of Life-boats.—The following important communication to life-boat crews on the management of their boats, has just been issued by the National Life-boat Institution,—Lest any of the crews of the life-boats in connection with the National Life-boat Institution should take alarm at the melancholy accident which recently occurred to the Point of Ayr life-boat, the central committee of the Institution think it right to acquaint them at once with the following facts:—

1. That none of the life-boats of the institution are on the same plan as that at the Point of Ayr, that boat being unprovided with ballast and having no self-righting power, and differing from the boats of the institution in other important respects.
2. That the crew of that life-boat were not provided with life-belts, which, had they been so, might have proved instrumental in saving some, if not all, of their lives.
3. That the boat was under sail at the time, and (as the committee are informed) that the sheets of the sails were found to be made fast when she was subsequently picked up.

Since to the two latter circumstances may the loss of life on this occasion be chiefly attributed, the committee request the local committees to inform their several coxswains that they will be held responsible for every man who goes into the life-boat on service without having on a life-belt. And that, in those boats in which it is indispensable to carry sail, they are on no account to suffer the sheets to be *made fast*, but to appoint a trustworthy man to attend each sheet, keeping it in his hand.

On its being ascertained that the coxswain has neglected his duty in either of these respects, on the first occasion of his doing so, he will be considered to have forfeited his pay for the current quarter; and on the second occasion will be liable to dismissal.

The coxswains are likewise to be informed that they are never to use their sails unless the distance to the scene of wreck is too great to be reached by rowing, and that, as a general rule, when running for the land before a heavy sea, they will invariably, if practicable, take in their sails before going into the broken water.

Sluggishness of the Compass in the Arctic Regions.

3, *Mulgrave Place, Plymouth, 11th Feb.*, 1857.

Sir,—Reading *M'Clure's Discovery of the North-West Passage*, by Osborn, I find at pages 198 and 199 the following:—

"A serious and alarming difficulty now added to the anxieties of our navigators. The compasses, without any apparent cause, became exceedingly sluggish, and varied to such an extent in the dense fogs then prevailing, that it became impossible to tell which way they were going. The standard compass one day showed the ship's head to be North, whilst the starboard one pointed S.W.b.W.½W., and the port compass remained obstinately at S.b.W. Every care was taken to ascertain and remove the causes of this eccentricity in the needles, but it still remained."

Will you, Mr. Editor or any of your numerous scientific correspondents, explain the cause of the extraordinary circumstance.

I have, &c.,

K. L. Sutherland.

To the Editor of the *Nautical Magazine*.

[We shall be happy to receive the opinions of any of our readers on this subject; but in ours, the diminution of magnetism near the magnetic pole and the consequent increased effect of local attraction either in the ship or from adjacent ferruginous rocks, will go far to account for it.—Ed.]

Complacent Wrecks.

Melbourne, 28th October, 1856.

Sir,—As an early contributor to the *Nautical Magazine* on the abuses arising from marine insurance, I have read with much pleasure in to-day's *Melbourne Morning Herald*, an article copied from the *Nautical* by a humourous correspondent on the magical effects of marine insurance instanced in the case of the *Schomberg;* to which I have to add two other instances of magical effects. The one is, that of the ship *Luarence Frost*, which ship got ashore on a sand-bank inside of Port Phillip Heads, and almost immediately therefrom filled with water, damaging the whole of her cargo as matter of course. The other is the brig *Mountain Maid*, fully laden with sugar, which was run down by the *Queen* steamer, and immediately sank; the master, pilot, and crew having to swim for their lives. No lives were lost in either case, and there is not the semblance of a complaint, nor even a remark, from either shipowner, merchant, consignee, marine-insurer, or any other person. In fact, so far as property is concerned, no person seems to be aware that any loss has taken place in either case, and

we are quite prepared for as many more such cases as may be destined for us, and of which we will remain in equally blissful ignorance. Such are the *magic effects of marine insurance.*

I am, &c.,

JAMES BALLINGALL, *Surveyor of Shipping.*

To the Editor of the *Nautical Magazine.*

NAUTICAL NOTICES.

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from p. 104.)

Name.	Position.	Where.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
1. Lofoten Islds.	68° 3′ N., 13° 41′ E.	Glopen	F.	140	12	Est. 1st Jan., '57. To continue till 14th April.
	68° 3′ N., 13° 34½′ E.	Svino	F.	200	10	Est. 1st Jan., '57. Red light. Until 14th April.
		Hennings-vaer	Ffl.		14	Est 1st Jan., '57. From 15th August until 1st May.
2. Piedras Cay		Cuba				Lighthouse destroyed on 25th August, in a hurricane.
3. Mississippi	S.W. Pass	West side	F.	70		Est. 31st Dec., '56. That on Franks Island discontinued.
	South Pass	Gordon Isld.	R.	60		Est 31st Dec., '56. Interval of Revolution 75 seconds.
	Passe à l'outre	Middle Gordon Isl.	Ffl	77		Est. 31st Dec., '56. On North side of entrance.
4. Moose Peak	44° 28′ N., 67° 31·1′ W.		R.			Est 1st April, '57. Interval of Revolution changed from 120s. to 30s.
Manheigin	43° 44′ N., 69° 15′ W.		R.			Est. 1st April, '57. Interval changed from 2 minutes to 1, and red light abolished.
5. Crescent City, California	41° 44·6′ N., 124° 11′ W.	Outer Extr. of I. Pnt.	Ffl.	80	14	Est. 10th Dec., '56.
Santa Barbara	34° 23·6′ N., 119° 42′ W.	On Bluff	F.	180	10	Est 1st Dec., '56. Variation in 1853 13½° E.
6. Stephano Burun	40° 57 2′ N., 28° 50·6′ E.	Sea of Marmora	Ffl.	78	12	Est. 4th Jan., '57. Flashes every two minutes. Only visible when bearing from E.¼N. round Northerly to W.b.S.¼S
7. Panar Islet	40° 37·7′ N., 27° 46′ E.	Ditto.	Ffl	132	12	Est. 15th Feb., '57. *Red* flashes every two minutes. Variation in 1857 7° 20′ W
8. Cape Spathi	36° 22·8′ N., 22° 57·5′ E.	Cerigo	R.	363	24	Est. 1st March, '57. Interval half a minute. Only visible when bearing from E.N.E round Southerly and as far Northerly as N.W.b.N.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established. m. Mean level of the sea.

Rock in Macclesfield Channel, *Gaspar Strait.*

On my passage from Singapore to London my vessel struck on a coral bank, lat. 2° 42′ S. and long. 107° 5′ E., which I do not find laid down in the charts. There were nineteen fathoms' water till within a cable's length distance. The bank is about eighty fathoms in circumference, with water varying from four to twenty feet.

C. L. Lied, Master of the barque
Carl Rouneberg, of Aalesund, Norway.

The foregoing appears in the *Shipping Gazette* of 17th February last and is an important contribution to the chart of Gaspar Strait. The rock is in the fairway North of Leat Island, and it is more than likely that others are in the neighbourhood, requiring a vigilant look-out.

Atlantic Vigias.

As the days of Atlantic vigias would seem to be numbered, now that a system of deep sea sounding has been established by the United States' Government, on which dependance can be placed, we preserve the following communication to the Admiralty, that we may see hereafter what faith is to be placed in these matters. It is clear that the Spanish Hydrographic Office has little confidence in it, and, coming to us as it does with no kind of particulars, it is just worth preserving as there may be a chance of something being found near its position.

Atila Rock, *S.W, of Azores.*

Hydrographic Office, Madrid.

Sunken rock of uncertain depth in the Atlantic Ocean, S.W. of the Azores:—Lat. 36° 31′ N., long. 32° 24′ East of Greenwich.

The Captain of the Spanish brigantine Atila has addressed a letter to his Excellency the Vice-President of the Admiralty, stating that in the month of May last, while on the passage from the Havana to Cadiz, the above rock was seen by him and several individuals of his crew, which they were unable to examine in consequence of the state of the weather.

The Spanish Hydrographic Office has in consequence thus informed navigators of the subject, that when on the above-mentioned parallel they may adopt the necessary precautions to avoid it, in the event of the account proving true; and also to examine it and determine its extent, the depth of water over it, and its position, and report them to the authorities, at the first port of their arrival, for the information of mariners and in order that the Hydrographic Office may proceed to place it on the chart with the necessary exactness,—which it will not do in the present case nor in any similar case, without first receiving such particulars as those, which may be easily obtained.

Time Ball at Whampoa.

H.M. sloop Bittern, Whampoa, 10th June, 1856.

While H.M. sloop *Bittern* is lying at Whampoa, a time ball will be in operation on board, for the convenience of merchant ships wishing to obtain the errors and rates of their chronometers.

A black ball will be hoisted at the main, half-mast, as a premonitory signal, at five minutes to one p.m.—At three minutes before one it will be at the mast-head, and will be dropped *precisely* at one p.m., *local mean time.*

Whampoa local mean time (where H.M. sloop is at anchor) is fast of Greenwich time 7h. 33m. 34s. 9t.

About 0·5 of a second should be allowed for the inertia of the ball and transmission of the signal to the observer below, and the intervention of an intermediate watch should, if possible, be dispensed with.

The time will be given on Mondays and Saturdays, which will enable vessels stopping only a short time at the anchorage to proceed to sea with either a *five* or a *seven* days' rate. No vessel should be content with a less interval than five days.

The signal will be given for the first time on Saturday next, the 14th inst.

Wm. Thornton Bate,
Commander H.M.S. Bittern.

Friend of China, June 14th.

Mutlah Pilots.

Newcastle-on-Tyne, Feb. 9th, 1857.

Sir,—I send you below an extract from the Calcutta correspondent of the *Times* newspaper's communication of December 22nd, relative to the Mutlah, believing the same to be of sufficient interest to your numerous readers to warrant its insertion in an early number of your periodical.

I am, &c.,

Nauticus

To the Editor of the *Nautical Magazine.*

Calcutta, December 22nd, 1856.

Further measures have been adopted to open the navigation of the Mutlah. Six pilots have been placed upon the river. A custom-house has been established on the point nearest to Calcutta. The government lots are being cleared for the site of the new city. The merchants are erecting sheds in all directions on the opposite side, and land hitherto regarded as an incumbrance has risen to an appreciable value. The engineer of the South-Eastern Railway has arrived, and has reported favourably of the facilities for connecting the river with Calcutta, and vessels begin already to flock to the new

port. In fact, the trade of Calcutta increases too fast for the Hooghly. The river literally cannot hold the shipping. The moorings have been extended miles beyond the business centre of the town, and can be extended no further, while accidents from overcrowding are of daily occurrence.

THE VARNE.—The Trinity House has given notice, that for the greater safety of vessels navigating that part of the English Channel, it is the intention of this corporation to cause a large Spiral Buoy, coloured *red* and surmounted by a staff and ball, to be placed early in the month of April next in a South Westerly direction from the shoalest part of the Varne Sand.

CORTEZ SHOAL, NEAR SAN NICHOLAS.—The commanding officer of the U.S. coast survey in the Pacific, has notified the position of a dangerous locality on Cortez Shoal, where there is a depth of only 2½ fathoms water. It lies to the Southward and nearly equidistant from the islands of San Clemente and San Nicholas, in lat. 32° 25′ 40″ N., long. 119° 5′ 7″ West of Greenwich.

It appears to be sharp point of rock approaching thus near the surface, with deep water around it. It is near the Eastern extremity of the shoal, which, within the fifty fathoms' curve, extends about 16 miles W.N.W. and E.S.E., and is about four miles wide.

GREYTOWN HARBOUR, NICARAGUA.—A recent survey of Greytown Harbour by Messrs. Scott and Thomas, Masters, Royal Navy, has shown that the sandy spit named by the Spaniards Punta Arena, has advanced a cable's length to the South-Westward during the last three years, thereby reducing the width of entrance to little more than two cables' length. A black beacon buoy has been placed off the North-Western angle of the breakers, and a red buoy at a cable's length to the westward of the dry sandy point. The leading mark into the harbour at present is the flagstaff on the beach in front of the town in one with a conspicuous tree to the South-Eastward of the town bearing S. 63° 30′ E., magnetic.

CHANGES AT MOULMEIN RIVER,—*Caution to Seamen.*

Rienzi, Moulmein, Dec. 15th, 1856.

Sir,—I wish to point out to you the imperfection and very gross error in the latest survey of Moulmein River by Lieut. W. Fell, I.N. On the chart in the channel you will perceive that there is marked between the red buoy on the Southern extreme of the Godwin Sand and the black buoy on the N.W. part of the Queckmi Reef, 9, 8, 7, 5, 4, fathoms at low water spring tides, whereas in reality there is only in the deepest part of the channel 12 feet at low water spring tides, and from the very excellent manner in which the chart has been printed and published by Mr. Walker, and dated Nov. 22nd, 1848, it is liable to lead shipmasters into great danger, by their attempting to

run into Amherst Harbour without a pilot, especially in the S.W. monsoon. I have met with a narrow escape myself, and trust that you will kindly insert this in your valuable journal for the information of my seafaring brethren.

I am, &c.,
JAMES BARRATT,
Master of the ship *Rienzi*.

To the Editor of the *Nautical Magazine*.

[We have not seen Mr. Walker's chart, but the discrepancies pointed out by the Master of the *Rienzi*, are most important, and will be sufficient to caution our seamen how they use Lieut. Fell's chart. Changes we know are perpetually taking place in the channels of rivers, and that of Moulmein can be no exception. Our correspondent will find some excellent remarks on this river in our volume for 1855 (page 449) as to the best place for awaiting the pilots, and we shall be very glad if he will send us anything to add to them.—ED.]

LOSS OF THE "TYNE."—*Report to the Board of Trade.*

The Court, after a very long deliberation, agreed to the following report:—

Guildhall, Southampton, 29th January, 1857.

My Lords,—We have the honour to inform your lordships that we have, with the assistance of Captain Walker, as nautical assessor, made an investigation this day respecting the loss of the steam-ship *Tyne*, which was stranded on Kemmeridge Ledge on the 13th inst., at 3h. 40m. a.m., and we send your lordships the following report, and our opinion, together with the certificate of the Captain:—

The *Tyne* was an iron ship, of 2,100 tons, belonging to the Royal Mail Steam Packet Company, commanded by Captain Valler. She left Pernambuco on the 23rd of December for Southampton, with a light cargo and fifty-three passengers, and experienced strong head winds nearly all the voyage. At 5h. a.m. of the 12th inst., she made Ushant, which, on the first observation, at 5h. 15m. bore E.b.N.$\frac{3}{4}$N., when the bearings were altered by keeping her off N.E., on account of the set in, and at 7h. a.m. E.b.N.$\frac{1}{2}$N., being the direct course for Portland. On leaving Ushant, soundings were regularly made across the Channel. At 11h. 20m. p.m. the Portland Lights were first made. At 11h. 30m. the course was altered to East, to shape it to the Needles, the ship going half speed, and at midnight the lead was hove for the last time. At 2h. 25m. a.m. on the 13th inst. the Portland Lights were dipped, bearing N.W.b.N.$\frac{1}{4}$N., with thick foggy weather, and the ebb and wind on her starboard bow, the ship keeping East till she stranded.

After a most careful and anxious investigation, we cannot arrive at any other opinion than that *the ship was lost by the wrongful act and*

default of Captain Valler, in consequence of the lead not being constantly hove on approaching the land, and in accordance with the Company's instructions, and the Captain not making due allowance for the wind and strong ebb tide that was running from the time he passed Portland, and the total absence of those precautions necessary to ensure the safety of a large ship, within so short a distance of the land.

We enclose the testimonials of competency handed to us by Captain Valler, and we call the attention of your lordships to the evidence of Captain Vincent and the officers of the *Tyne* to the very high character and great reputation for skill and ability hitherto borne by Captain Valler.

We have, the honour to be, my Lords,

Your Lordships' obedient servants,

P. BRETON

JOSEPH LOBB,

Justices of the Peace for the Town and County of the Town of Southampton.

I entirely concur in the foregoing able report.

W. H. WALKER.

CAPTAIN BECHER'S ARTIFICIAL HORIZON.

In adding another testimony to the many which have already appeared in praise of this useful and valuable invention, I can say, that having used it for six years and a half in Behring Strait and North-West America, where fogs are dense and frequent, I have the greatest confidence in the results.

The Artificial Horizon Sextant was handed to me by Captain Kellett, who desired me to see what I could make of it. The results were very frequent. When it was impossible to see the horizon from fog, the latitude by meridian altitude was obtained with it generally within a mile and a half, after a year's practice.

We are desired in the *Manual of Scientific Enquiry*, page 8, "to use every endeavour to become familiar with Becher's Horizon, or some equivalent instrument." I fear this is little attended to from the necessity of practice; which, when acquired, renders the instrument interesting, useful, and indispensable. The dread of this practice, like that of the inverting telescope of the sextant, is the only objection offered to its general use.

I would suggest that every vessel visiting foggy regions be supplied with one of these horizons, and that every surveying ship, under any circumstances, have one, and particularly exploring parties in the interior of countries and up rivers, where altitudes can be obtained with it by night or day without the necessity of landing, or using an horizon of mercury.

The present sextant in use could be fitted at a trifling expense with

this addition, to ship or unship at pleasure. I would also recommend that some practice be made first on land, then the only difficulty to overcome is to counteract the pitching and rolling motion at sea.

WILLIAM CHIMMO, late in command of H.M. steam-vessel *Torch*.

CLIFFORD'S MODE OF LOWERING BOATS.—Mr. Clifford, whose excellent and simple method of lowering ship's boats we noticed in our last volume, is wisely adopting the most effectual means of making it known to those whom it most concerns—the seamen themselves. He is busy in the North illustrating by example and instructing by practice those who have to profit thereby, and it will not be his fault if the lives of that valuable class of her Majesty's subjects are not rendered more secure in future than they have been. Indeed, he deserves well of his countrymen for his exertions in so important a branch of nautical matters as that of saving life from the common accident of falling overboard; and with the view of assisting him in his laudable efforts, we may add, that among the seamen of Aberdeen, Dundee, Peterhead, and the adjacent coast, all that we said of it in our last year's volume is amply and completely confirmed. We perceive, also, by the papers, that a severe trial has been made of it from H.M.S. *Bulldog* and also the *Princess Royal*, with results so satisfactory, that the *Indus* and several other ships are reported to have been fitted with it, a commencement we trust to its general adoption throughout the whole maritime service of the country.

NEW AND CORRECTED CHARTS, &c.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

	Price	*s.*	*d.*
England, South Coast, sheet 4, Portland to Portsmouth, Capt. Sheringham, R.N., 1848		2	0
West Indies, sheet 3, Virgin Islands, Lieut. G. B. Lawrance, R.N., 1852		3	0
Tartary, Port Deans Dundas, Messrs. May and Freeman, Masters, R.N., 1856		1	6
United States, Portland Harbour and its approaches, U.S. Coast Survey		2	0
,, Block Island to Great Egg Harbour ,,		3	0
,, Bay of Fundy, to Long Island ,, 1854		3	0
South Australia, Port Phillip, Mr. Polkinghorne, Master, R.N. corrected to 1856		2	0
,, Bass Strait, corrected to 1856		2	0
Sailing Directions, for Alexandria Harbour, Comdr. Mansell, R.N. 1856		0	3
,, Siam Gulf, Mr. J. Richards, Master, R.N., 1856		0	3

EDWARD DUNSTERVILLE, Commander, R.N.

Hydrographic Office, Admiralty, February 23rd, 1857.

ERRATA.

Page 62, l. 10, *for* "thirty-eight miles" *read* "38°."
,, l. 26, after "ropes" insert "up."
,, l. 34, *for* "the cast" *read* "a cast."

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

APRIL, 1857.

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria.*

At midnight of the 24th of June, 1856, we received our pilot and bade adieu to Newcastle, celebrated in Europe as well as Australia, as a port without other attractions than those of coals!

Our vessel, the *Torch*, was very deep, having on board 130 tons of this article, being 52 in excess of what she usually carried; but so important was it to us, that we crammed her almost dangerously, her sponson booms being level with the water's surface; but fine weather and a smooth sea favoured us.

On the morning of the 26th our voyage was threatened with an abrupt conclusion by the coals near the steam-chest taking fire; but timely measures happily prevented any serious disaster.

Favoured by fine weather, we continued our northerly course, passing empty whalers and other vessels, but at the same time regretting that instructions from his Excellency the Governor-General stated that we were not justified in expending any time in hydrographical or geographical inquiries other than those which may come in the way in navigating seas so little known. But an opportunity offered without detaining the vessel in her progress to Torres Straits, which enabled us to add another to former proofs of the non-existence of Gardner's 9 fathom shoal off the Great Sand Island, in lat. 25° 25′ S., and long. 154° E. And after leaving Cape Moreton

(where a lighthouse has so long been promised and not yet commenced) we continued our voyage.

On the morning of the 28th, we had our first fair wind, fresh from S.W. The glorious sun rose from a bed of clouds, (light cirrus,) enriching them with a golden hue. In the West the land clear aud distinct, and in the South an occasional flash of lightning lighted up a few dark clouds, promising wind from that quarter. Our fair wind being established, steam was no longer required, and the *Torch* was soon under all her canvas as a brig; but had soon to reduce it to a sudden violent South-Easter, with rain, that settled down in a moderate S.W. gale.

We hauled up for Breaksea Spit, much disappointed at not having daylight and moderate weather to get a cast of the lead on Gardners Bank, although, from our position at noon next day it was evident that we had passed directly over the middle of it as placed on the chart. If this bank had been there the agitation of the sea would have plainly shown it.

On the evening of the 29th we hauled into Harvey Bay, and here we considered ourselves to have fairly entered the Barrier Reef. On the morning of the 30th, we found ourselves in the middle of the bay, with a light South wind and a cloudless sky, and soon after passed the entrance of Port Curtis. Towards night it fell a calm, and therefore we let go an anchor, in 15 fathoms; glad at this prospect of a rest after three nights of toil between Mount Warning and Lady Elliott Island.

The prospect of Port Curtis, as we lay at anchor off it, recalled to my mind recollections of former days. A few months only had passed since I had had occasion to visit Gladstone to pay the last sad duties to the remains of poor Spurling, one of the unfortunate persons who was murdered at the Percy Islands by the natives. I well remembered the reception I had met with even as a stranger, and I would now gladly have renewed an acquaintance with the Government Resident and his amiable lady in their unfrequented, isolated, and arid land; but our voyage admitted of no delay, and our motto was "onward."

At daylight on the 1st of July the anchor was at the bows, and we shaped our course for Cape Capricorn, with a very light air, which enabled us only to reach Keppel Bay, where we anchored in the evening under Hummocky Island, the Southern of the Keppel Group, probably the only vessel (and certainly the first steamer) that has anchored in this bay since the indefatigable Flinders, in the *Investigator*, in 1799; and which we gladly left the next day.

But the winds failing us, and having lost three days by it, we determined on again adopting steam; shortened all sail accordingly. Passing the First Lump during the night, as well as Peaked Island, we found ourselves, after making a due North course, at daylight with a small nameless sandy islet close alongside, which proved to be the sand islet on the inner elbow of Swain Reefs, with the group of Percy Isles to the West.

It was on islet No. 2 of this group that only a few months since the unfortunate geologist, Mr. Strange, and his three companions, in the employment of Government, were brutally murdered by the natives, while collecting geological and botanical specimens, and it had fallen to my lot, in this same vessel, the *Torch*, to ascertain their fate. Three of their bodies had been thrown into the deep sea; the fourth, that of poor Spurling, I had found lying speared in a mangrove swamp.

At about five in the evening we passed close round the North side of No. 4 islet, having the low reef of rocks to the N.E. about one and a half miles. The passage clear, deep 33 fathoms, and without an apparent danger, steering for Double Island for an anchorage during darkness. It appeared to me somewhat remarkable that the different approaches to the safe and tranquil passage of the Inner Route should have undergone so little examination, and the several entrances to this route appear to have received but little attention, while the North from Rockingham Bay to Cape York has undergone so minute a survey.

At ten we anchored near Double Island in 20 fathoms, and found we had been set considerably to the Southward since leaving our last anchorage; during the night we found the flood setting S. 33° W., two miles per hour nearly, and the ebb to the N. 30° E., one mile per hour.

Favoured by a brisk S.E. trade, on the 5th we passed within one mile of the West side of Bailey Island, the position of which is correct with regard to the other islands surrounding it, but it may be safely erased from its new position, and allowed to occupy its former one on the chart.

We anchored off it for the night in 11 fathoms, soft green mud, with the passage through the islands bearing South. This enabled me also to add the North feature of the island, which completes it on the chart. Its height is about 700 feet; the two are disconnected by a narrow stream of water, and they are, as well as the rest of the group, most picturesque islands; green grassy slopes from the peak, some to the sandy beaches, others terminating in abrupt perpendicular cliffs; the valleys thickly studded with pine trees, present altogether a most pleasing appearance. No natives have as yet been seen among these islands.

At four on the morning of the 6th, we started with a smart breeze from S.E., passing Pentecost Island of the Cumberland Group,—a mass of almost perpendicular rock, of 1140 feet elevation. Then to Pine Island passage, through which we passed at 2h. p.m., having a cluster of small islands to the Eastward. It is here that many irregularities in islands and coast line are perceptible on the chart, and also the necessity for a coast survey, if ever this should be made a thoroughfare for the mariner. In one place are two islands one mile and three quarters off a cluster of islands, when in reality they were scarcely half a mile. Three rocks, N.b.W. of these, two about 30 feet high, and one about a quarter of a mile from it, about 10 feet high; the

latter is not marked at all. A rock, dry at high water, off the South end of Island, is not noticed.

This new channel, which I am indebted to Captain Watson, the owner of the vessel, for allowing me to direct our course through in order to find its advantages or disadvantages to the inner route, should be named after that gentleman. It has an average depth from 20 to 35 fathoms, coral and soft mud, and without a single apparent danger in it; and by taking it much sea was avoided, independent of the novelty and credit of having passed through an unknown and really a good channel.

Off middle island, (Gloucester Bay,) on shaping a course for Cape Upstart, we found the compasses so sluggish that it was only by constantly worrying them that they could be induced to move at all. However, at daylight, we were off Cape Upstart, near which a light was seen, and also a few natives (four or five) near Cape Bowling-green; but they showed no inclination to communicate, although fires were observed along the coast, and particularly about Cape Cleaveland.

Before reaching the Palm Islands, Chilcotts 5 feet rocks were seen to break, every now and then, as it were, flashing through the darkness of the night; and hereabouts the indraught was very great, occasioned by the rush of water through the several openings in the reefs, distant from fifteen to twenty miles; by day it is clearly seen, but by night it is more dangerous, as no estimated allowance can be made for it.

It was fortunate that the rocks of Cape Sandwich did not arrest our progress, for here the natives, a few years since, made a most unprovoked attack on a fishing party belonging to H.M.S. *Fly*, and shortly afterwards they attempted to cut off a vessel obtaining water. But we saw no natives or fires about this bay.

Passing Rockingham Bay reminded us of the unfortunate and ill-fated expedition under command of Mr. Kennedy, who fell under the spears of the natives, in the presence of his faithful follower, just as he was about completing his arduous task. Of that expedition, which consisted of thirteen, only three returned alive.

We were now becoming at home with the coast, with the beautiful charts of Capt. Blackwood in our hand. There was no difficulty now in recognizing every part of the shore as we passed it, and felt assured that there are no more dangers than those which we saw,—no small relief of mind after passing by nearly 1200 miles of unsurveyed and comparatively unknown coast, from Port Stevens to Rockingham Bay, comprising fourteen degrees of latitude and eight degrees of longitude, without including the groups of Palm Island, the Northumberland, the Cumberland, the Percy, and the Keppel Isles. A portion of this coast, from Port Stevens to Moreton Bay, contains three rivers navigable for steamers:—the Mac Leay, the Clarence, and the Manning. Those steamers leave Sydney weekly with passengers and cargo.

[A pressure of other matter compels us to reserve more of Lieut. Chimmo's important journal for our next. ED.]

THE POPULATION OF CHINA,—*A Letter addressed to the Registrar-General, London. By Sir John Bowring.*

The importance of Chinese information in the present condition of our relations with that country, induces us to borrow the present article from the *Transactions of the China Branch of the Royal Asiatic Society*, but stated to have been previously published in the *Athenæum* of Nov. 17th following its date.

Government House, Hongkong,
13th July, 1855.

Sir,—I wish it were possible to give a satisfactory reply to your inquiries as to the real population of China.

There has been no official census taken place since the time of Kia King, forty-three years ago. Much doubt has been thrown upon the accuracy of these returns, which gave 362,447,183 as the total number of the inhabitants of China. I think our greater knowledge of the country increases the evidence in favour of the approximate correctness of the official document, and that we may with tolerable safety estimate the present population of the Chinese empire as between 350,000,000 and 400,000,000 of human beings. The penal laws of China make provision for a general system of registration; and corporal punishments, generally amounting to 100 blows of the bamboo, are to be inflicted on those who neglect to make the proper returns. The machinery is confided to the elders of the district, and the census is required to be annually taken; but I have no reason to believe that the law is obeyed, or the neglect of it punished.

In the English translation of Father Alvares Semedo's history of China, published in London, A.D. 1655, is the following passage:—

"This kingdom is so exceedingly populous, that having lived there two-and-twenty years, I was in no less amazement at my coming away than in the beginning, at the multitude of the people. Certainly the truth exceedeth all hyperboles; not only in the cities, towns, and public places, but also in the highway there is as great a concourse as is usual in Europe on some great festival. And if we will refer ourselves to the general register book wherein only the common men are enrolled, leaving out women, children, eunuchs, professors of letters and arms, there are reckoned of them to be fifty-eight millions fifty-five thousand one hundred and four score." The minuteness of the enumeration would seem to show that the father quoted some official document.

I forward herewith two tabular statements which I have copied from Dr. Williams' *Middle Kingdom*, one of the best books on China. The first (No. 1) gives a list of the various estimates from A.D. 1393 to 1812, with the authorities quoted. The second is a re-arranged statement of censuses taken at different periods (No. 2).

As there are few men in China more diligent or better instructed than Dr. Williams, I thought it desirable to communicate with him in order to ascertain his present views as to the credit which may

properly be attached to the official statistics of China. I send a copy of his letter (No. 3).

I do not know that there is any safer course than to reason from details to generals, from the known to the unknown; and I have taken every opportunity which my intercourse with the Chinese has afforded me, to obtain, if not correct, at least approximative, information as to the true statistics of the country. It may be affirmed without any hesitation, that as regards the Five Ports and the adjacent districts, to which we have access, the population is so numerous as to furnish arguments that the number of inhabitants of the entire Empire is very much greater than is represented by the official returns. Those localities cannot be taken as fair averages; for, naturally enough, increased commercial activity has brought with it a flow of new settlers, and there can be no doubt that some of the ancient seats of commerce have lost much of their population in losing their trade; but whether all the causes of decline in particular spots have much concentrated the fecundity of the Chinese races considered as a whole, may well be questioned.

Some years ago I had an opportunity of discussing the subject of Chinese population with the mandarin at Ningpo, who was charged with making the returns for that district. Ningpo can scarcely be called a progressive place—it is decidedly the least so of the Five Treaty Ports; but I found, generally speaking, that the real returns were considerably in excess of the official estimates.

And I would remark, that, in taking the area of the eighteen provinces of China at 1,348,870 square miles, the census of 1812 would give 268 persons to a square mile, which is considerably less than the population of the densely peopled countries of Europe.

According to ancient usage, the population in China is grouped under four heads,—1, Scholars; 2, Husbandmen; 3, Mechanics; 4, Merchants. There is a numerous class who are considered almost as social outcasts, such as Stage-players—professional Gamblers—Beggars—Convicts—Outlaws, and others; and these probably form no part of the population returns. In the more remote rural districts, on the other hand, the returning officer most probably contents himself with giving the average of more accessible and better-peopled localities.

I have no means of obtaining any satisfactory tables to show the proportions which different ages bear to one another in China, or the average mortality at different periods of human life; yet to every decade of life the Chinese apply some special designation:—the age of 10 is called "the Opening Degree;" 20, "Youth expired;" 30 "Strength and Marriage;" 40, "Officially Apt;" 50, "Error knowing;" 60, "Cycle Closing;" 70, "Rare Bird of Age;" 80, "Rusty visaged;" 90, "Delayed;" 100, "Age's Extremity." Among the Chinese the amount of reverence grows with the number of years. I made, some years ago, the acquaintance of a Buddhist priest living in the convent of Tien Tung near Ningpo, who was more than a century old, and whom people of rank were in the habit of visiting in

order to show their respect and to obtain his autograph. He had the civility to give me a very fair specimen of his handwriting. There are not only many establishments for the reception of the aged, but the penal code provides severe punishments for those who refuse to relieve the poor in their declining years. Age may also be pleaded in extenuation of crime, and in mitigation of punishment. Imperial decrees sometimes order presents to be given to all indigent old people in the empire. I am not aware of any detailed statistics giving the number of such recipients since a return published in the time of Kanghi (1657). Kienlung (1785) directed that all those claimants whose age exceeded 60, should receive 5 bushels of rice and a piece of linen; those above 80, 10 bushels of rice and two pieces of linen; those above 90, 30 bushels of rice and two pieces of common silk; and those above 100, 50 bushels of rice and two pieces, one of fine and one of common silk. He ordered all the elders to be enumerated who were at the head of five generations, of whom there were 192, and, "in gratitude to heaven," summoned 3000 of the oldest men of the empire to receive Imperial presents, which consisted principally of embroidered purses, and badges bearing the character *shau*, meaning *Longevity*.

The Kanghi tables, showing the numbers who enjoyed the benefit of the Edict, are these:—

Provinces.	Above 70 Years.	Above 80 Years.	Above 90 Years.	Above 100 Years.	Totals.
Chihle	..	11,111	535	..	11,646
Leaoutung	244	88	5	..	337
Kansuh	41,991	9,043	250	..	51,284
Shantung	65,225	26,067	1,330	9	92,631
Honan	8,132	3,651	451	5	12,239
Keangnan	..	34,088	1,065	3	35,156
Chekeang	..	21,866	982	..	22,848
Shanse.....	13,382	11,582	317	..	25,281
Hookwang	37,354	25,544	2,850	4	65,752
Keangse.....	..	7,190	580	..	7,770
Kwangtung.....	17,369	9,415	591	..	27,375
Kwangse	..	489	114	..	603
Fuhkeen	10,213	5,232	369	..	15,814
Szechuen	176	99	13	..	288
Kweichow	..	749	94	..	843
Yunnan	..	3,618	450	..	4,068
Total ..	194,086	169,832	9,996	21	373,935

As these returns bear no proportion to the general population of the country, or to the relative extent of the various provinces, many fortuitous and local circumstances must have caused the obvious incongruities. For example: in the adjacent provinces of Kwangtung and Kwangse, in which the whole mass of population is in the proportion

of two to one, the recipients are as 46 to 1, and as regards age, while the proportion of those above 80 is represented at 19 to 1, those above 90 are only a little more than 5 to 1. In all these matters the greater or less co-operation of the local authorities is one of the most important elements in producing a result. Kwangse is extremely mountainous, and bordered on the north-west by the country of the Meaou-tsz, or aborigines, the districts adjoining which are but in a half reclaimed state, and governed by officers of a character and denomination distinct from those of the provinces. But it is inexplicable that the province of Pechile, in which Peking is situated, should exhibit so small a proportional return, especially as compared with the adjacent province of Shantung. Hookwang, with a population of 26¼ millions, has 37,354 indigent persons above 70, while Szechuen, whose population is 21½ millions, presents only 176 persons in that category.

I think there is abundant evidence of redundant population pressing more and more heavily upon, and suffering more and more severely from an inadequate supply of food. Though there are periods when extraordinary harvests enable the Chinese to transport rice, the principal food of the people, from one province to another,—and sometimes even to foreign countries,—yet of late the importation from foreign countries have been enormous, and China has drawn largely on the Straits, the Philippines, Siam, and other places, to fill up a vast deficiency in supply. Famine, has, notwithstanding, committed dreadful ravages, and the provisions of the imperial granaries have been wholly inadequate to provide for the public wants. It is true that cultivation has been greatly interfered with by intestinal disorders, and that there has been much destruction by inundations, incendiarism, and other accidental or transitory causes; but without reference to these, I am disposed to believe that there is a greater increase in the numbers of the population than in the home production of food for their use. It must be remembered, too, that while the race is thus augmenting, the causes which lead to the destruction of food,—such as the overflow of rivers, fires, ravages of locusts, bad seasons, and other calamities,—are to a great extent beyond the control of human prudence or human exertion. It would be difficult to show what new element could be introduced which would raise up the native supply of food beyond its present productiveness, considering that hand husbandry has given to cultivation more of a horticultural than an agricultural character.

The constant flow of emigration *from* China, contrasted with the complete absence of emigration into China, is striking evidence of the redundancy of the population; for though that emigration is almost wholly confined to two provinces, namely, Kwantung, and Fookien, representing together a population of probably from 34,000,000 to 35,000,000, I am disposed to think that a number nearer 3,000,000 than 2,000,000 from these provinces alone are located in foreign countries. In the kingdom of Siam, it is estimated that there are at least a million and a half of Chinese, of which

200,000 are in the capital (Bangkok). They crowd all the islands of the Indian Archipelago. In Java, we know by a correct census there are 136,000. Cochin China teems with Chinese. In this colony we are seldom without one, two or three vessels taking Chinese emigrants to California and other places. Multitudes go to Australia, to the Philippines, to the Sandwich Islands, to the western coast of Central and Southern America; some have made their way to British India. The emigration to the British West Indies has been considerable—to the Havana greater still. The annual arrivals in Singapore are estimated at an average of 10,000, and 2,000 is the number that are said annually to return to China.*

There is not only this enormous maritime emigration, but a considerable inland efflux of Chinese towards Manchuria and Tibet; and it may be added, that the large and fertile islands of Formosa and Hainan have been to a great extent won from the aborigines by successive inroads of Chinese settlers. Now these are all males—there is not a woman to 10,000 men: hence perhaps the small social value of the female infant. Yet this perpetual out-flowing of people seems in no respect to diminish the number of those who are left behind. Few Chinamen leave their country without a fixed purpose to return to worship in the ancestral hall—to bring sacrifices to the tombs of their fathers; but it may be doubted if one in ten revisits his native land. The loss of life from disease—from bad arrangements—from shipwreck—and other casualties, amounts to a frightful percentage on those who emigrate.

The multitudes of persons who live by the fisheries in China afford evidence not only that the land is cultivated to the greatest possible extent, but that it is insufficient to supply the necessities of the over-flowing population; for agriculture is held in high honour in China, and the husbandman stands next in rank to the sage or literary man in the social hierarchy. It has been supposed that nearly a tenth of the population derive their means of support from fisheries. Hundreds and thousands of boats crowd the whole coast of China—sometimes acting in communities, sometimes independent and isolated. There is no species of craft by which a fish can be inveigled which is not practised with success in China—every variety of net, from vast seines embracing miles, to the smallest handfilet in the care of a child. Fishing by night and fishing by day, fishing in moon-light, by torch-light, and in utter darkness,—fishing in boats of all sizes,—fishing by those who are stationary on the rock by the sea-side, and by those who are absent for weeks on the wildest of seas,—fishing by cormorants,—fishing by divers,—fishing with lines,—with baskets,—by every imaginable decoy and device. There is no river which is not staked to assist the fisherman in his craft. There is no lake, no pond, which is not crowded with fish. A piece of water is nearly as valuable as a field of fertile land. At day-break every city is crowded with sellers of live fish, who carry their commodity in buckets of

* Journal of the Indian Archipelago, vol. ii. p. 286.

water, saving all they do not sell to be returned to the pond or kept for another day's service. And the lakes and ponds of China not only supply large provisions of fish—they produce considerable quantities of edible roots and seeds which are largely consumed by the people. Among these the esculent arum, the water chesnut *(scirpus tuberosus)*, and the lotus *(nelumbium)* are the most remarkable.

The enormous river population of China, who live only in boats—who are born and educated—who marry, rear their families, and die—who, in a word, begin and end their existence on the water, and never have or dream of any shelter other than the roof, and who seldom tread except on the deck or boards of their sampans,—show to what an extent the land is crowded, and how inadequate it is to maintain the cumberers of the soil. In the city of Canton alone it is estimated that 300,000 persons dwell upon the surface of the river: the boats, sometimes twenty or thirty deep, cover some miles, and have their wants supplied by ambulatory salesmen, who wend their way through every accessible passage. Of this vast population some dwell in decorated river boats used for every purpose of licence and festivities—for theatres—for concerts—for feasts—for gambling—for lust—for solitary and social recreations: some craft are employed in conveying goods and passengers, and are in a state of constant activity: others are moored, and their owners are engaged as servants or labourers on shore. Indeed their pursuits are probably nearly as various as those of the land population. The immense variety of boats which are found in Chinese waters has never been adequately described. Some are of enormous size, and are used as magazines for salt or rice—others have all domestic accommodations, and are employed for the transfer of whole families, with all their domestic attendants and accommodations, from one place to another,—some, called *centipedes*, from their being supposed to have 100 rowers, convey with extraordinary rapidity the more valuable cargoes from the inner warehouses to the foreign shipping in the ports,—all these from the huge and cumbrous junks, which remind one of Noah's ark, and which represent the rude and coarse constructions of the remotest ages, to the fragile planks upon which a solitary leper hangs upon the outskirts of society—boats of every form and applied to every purpose,—exhibit an incalculable amount of population, which may be called amphibious, if not aquatic.

Not only are land and water crowded with Chinese, but many dwell on artificial islands which float upon the lakes,—islands with gardens and houses raised upon the rafters which the occupiers have bound together, and on which they cultivate what is needful for the supply of life's daily wants. They have their poultry and their vegetables for use—their flowers and their scrolls for ornament—their household gods for protection and worship.

In all parts of China to which we have access, we find not only that every foot of ground is cultivated which is capable of producing anything, but that, from the value of land and the surplus of labour, cultivation is rather that of gardeners than of husbandmen. The

sides of hills, in their natural declivity often unavailable, are, by a succession of artificial terraces, turned to profitable account. Every little bit of soil, though it be only a few feet in length and breadth, is turned to account; and not only is the surface of the land thus cared for, but every device is employed for the gathering together of every article that can serve for manure. Scavengers are constantly clearing the streets of the stercoraceous filth—the cloacæ are farmed by speculators in human odoures—the most populous places are often made offensive by the means taken to prevent the precious deposits from being lost. The fields in China have almost always large earthenware vessels for the reception of the contributions of the peasant or the traveller. You cannot enter any of their great cities without meeting multitudes of men, women, and children conveying liquid manure into the fields and gardens around. The stimulants to production are applied with most untiring industry. In this colony of Hongkong, I scarcely ever ride out without finding some little bit of ground either newly cultivated or clearing for cultivation.

Attention to the soil—not only to make it productive, but as much productive as possible—is inculcated as a political and social duty. One of the most admired sages of China (Yung-chin) says,—"Let there be no uncultivated spot in the country—no unemployed person in the city;" and the 4th maxim of the sacred Edict of Kang-hi, which is required to be read through the empire, on the 1st and 15th day of every moon, in the presence of all the officers of state, is to the following effect: "Let husbandry occupy the principal place, and the culture of the mulberry tree, so that there may be sufficient supply of food and clothing." Shin Nung, the name of one of the most ancient and honoured of the Chinese Emperors, means "the divine Husbandman."

The arts of draining and irrigating—of preserving, preparing, and applying manure in a great variety of shapes—of fertilizing seeds—indeed all the details of Chinese agriculture—are well deserving of note, and all display evidence of the inadequate proportion which the produce of the soil bears to the demands for the consumption of the people.*

The Chinese, again, have no prejudice whatever as regards food: they eat anything and everything from which they can derive nutrition. Dogs, especially puppies, are habitually sold for food: and I have seen in the butchers' shops, large dogs skinned and hanging with their viscera by the side of pigs and goats. Even to rats and mice the Chinese have no objection,—neither to the flesh of monkeys and snakes: the sea slug is an aristocratical and costly delicacy which is never wanting, any more than the edible birds' nests, at a feast where honour is intended to be done to the guests. Unhatched ducks and chickens are a favourite dish. Nor do the

* See a valuable paper on Chinese Agriculture in the Chinese Repository, vol. iii. pp. 121—27.

early stages of putrefaction create any disgust: rotten eggs are by no means condemned to perdition; fish is the more acceptable when it has a strong fragrance and flavour to give more gusto to the rice.

As the food the Chinese eat is for the most part hard, coarse, and of little cost, so their beverages are singularly economical. Drunkenness is a rare vice in China, and fermented spirits or strong drinks are seldom used. Tea may be said to be the national, the universal beverage; and though that employed by the multitude does not cost more than from 3d. to 6d. per lb., an infusion of less costly leaves is commonly employed, especially in localities remote from the Tea-districts. Both in eating and drinking the Chinese are temperate, and are satisfied with two daily meals—"the morning rice" at about ten a.m., and the "evening rice" at five p.m. The only repugnance I have observed in China is to the use of *milk*—an extraordinary prejudice, especially considering the Tartar influences which have been long dominant in the land; but I never saw or heard of butter, cream, milk, or whey, being introduced at any native Chinese table.

(To be continued.)

THE COAST OF ARABIA FELIX,—*from the Journal of Capt. W. F. W. Owen, of H.M.S. "Leven."*

Cape Muscat, 23° 37·5′ N., 58° 36′ E., variation of the compass 2·7° W. in cove, 1·0° W. outside. Muscat, Muscat Cove, or Bunder Mabarrak is formed on the South and West sides by very high land, and on the East by a high peninsula, which is joined by rocks to the mainland. The entrance to the cove is from the North.

Fahel Island, centre 23° 41′ N., 58° 30·9 E. The eastern peninsula is sometimes improperly called Muscat Island, thus confounding it with Fahel or Outer Island, a brown barren rock, about two leagues from the N.E. cape of the cove. Fahel is a little to the westward of Muttra Bay and Point, and there is clear navigation, with a depth of the or twelve fathoms, between them; but it is very steep to on the North side. It is a good mark for knowing the entrance to Muscat and Muttra.

Current off Muscat.—About Muscat the current generally sets in the direction of the wind. A ship failing to enter Muscat Cove may find shelter from a north-wester under the North point of Sudap Cove, about two or three miles to the southward and eastward of Cape Muscat; but this is not always advisable for a large ship, as the coast is steep to, with no anchorage until approached very close.

Pyramids.—The Great Pyramid lies a little to the northward of Sudap Point. It is a high isolated rock, with five, six, and seven fathoms between it and the mainland. The Little Pyramid is close

to the South point of the eastern peninsula (sometimes called Muscat Island); and close to the North point of it, or Cape Muscat, is another rock or islet called, called Fisher Rock. There is seven to nine fathoms close to this rock and to the shore of the peninsula.

Anchorage.—There is good anchorage at the entrance of the cove in ten fathoms, with Fisher Rock about E.N.E., and Fahel Island N.W.½W. Here large ships generally anchor previous to warping into the inner cove; but the ground is bad, and several fine ships have been lost from being caught in that position by strong North winds, to which this outer cove is exposed.

On all this coast, as far as Soor, we had no soundings within three miles of the shore. In approaching Muscat Cove, there is no danger; but no anchorage except within half a mile of the rocks.

Muttra Bay.—With a southerly wind, a ship may anchor further out, in fifteen fathoms, or she may stand to the westward into Muttra Bay, where there is good anchorage in nine or ten fathoms. Abundance of supplies may be had from the larger town of Muttra, where the population is more numerous than at Muscat. From thence she may proceed to Muscat as convenient.

With a northerly wind it is not prudent to lie outside, because it blows very hard sometimes from that quarter, and the ground is of sand and bad for holding. Pilots are always ready to go off on their signal being made, and will generally lose no time in taking a ship into the inner cove, where they commonly secure her by three or four anchors.

Adjacent country and supplies of Muscat.—The country near the sea appears to be very sterile, but to the southward of the hills which inclose the cove and town the land is very fertile and produces abundantly. About twenty miles to the westward of Muscat there are hot springs, which irrigate a small tract of country and render it very productive. The market produces abundance of fruits and vegetables from April to September, and an abundant supply of bullocks, sheep, poultry, and fish at all times.

British ships of war are always supplied with wood and water by the Imaum gratis. The former comes from Muttra and Burka; and for the latter it is better for a ship to use her own casks, as it is sometimes taken in bulk in oily boats.

Current.—In the S.W. monsoon the current sets strong along shore to the westward. In January we found a strong current to S.W.

Wreck.—We arrived on Christmas-day 1823. Found here Lieut. Hunter, R.N., agent for the *Travancore*, merchant ship. She arrived in an afternoon and anchored in the outer cove. At sunset a strong N.E. breeze set in, and before nine p.m. she was beaten completely to pieces on the rocky point of the inner cove,—having no room to veer more than thirty fathoms cable.

Trade.—There are some large stores for merchants at Muscat; the principal of whom are Banyans, for the Imaum tolerates all religions. They are of two stories, with flat roofs; but from the said roofs the greater part of the town is overlooked, being much in appearance like

the cellars of ruins covered in with loose palm branches or light thatch. The lanes through them are sometimes knee deep in mud, for the thatch is completely pervious to rain but not to sun, and the wind has no thorough draft. This, which seemed to compose the greater part of the town, was the bazaar. In these mud cellars there was a great display of eastern wealth, but it needs only to be once seen to know that it must be the abode of misery, disease, and death whenever the sun approaches it; and accordingly we learnt without any surprise that no European could live there a month in the hot season.

Arab Policy.—The Arab population is ranged in complete disorder around a stinking mud pool, and near the pass through the mountains on the Sedap road. This situation is not permitted to be occupied by more substantial dwellings than the worst sort of mat huts, for fear an enemy should make a lodgment there.

Produce in vegetables and fruit.—Lucerne is cultivated in plenty for the horses; but other cattle (even bullocks) and men live very much on fish and dates. The meat of their cattle was the fattest and sweetest we had tasted since we left England; the fat, however, was of a very dark yellow colour. We found here the finest asses we had ever seen, they were even as large as English mules. We saw camels only at Muttra. They bring dates and country produce from inland, and take back fish. We got abundance of grapes, pomegranates, sour oranges, sweet limes, sour limes, water lemons, dates, and kismisses, green and dry even at Christmas.

The Imaum of Muscat.—Muscat is an entrepôt for the Persian Gulf and the coasts of the Red Sea, N.E. Africa, and India. The Imaum is the principal merchant himself; but his policy is liberal, and his conduct said to be just. The friendship of the Bombay Government renders his dominion secure and his people prosperous. He is particularly disposed to tolerate Christianity and even to favour it, and accepted thankfully several copies of the scriptures in Arabic.

These notices will not be without interest to the navigator who visits Muscat, but it would be departing from the main object of this memoir to extend these observations.

We obtained at Muscat a piece of an Arab coast directory, in which the longitudes appear to have been borrowed from some old Portuguese authority. Such as it was, the coast pilots had no better, and it may be considered a fair specimen of the art of navigation in the sixteenth century. Perhaps it contains some notices not found in Horsburgh, as far as Rasul Had. It is presumed the numbers found against each express latitude and longitude; the latter, being apparently reckoned from Fogo, of the Cape de Verds, has been reduced to Greenwich.

Bunder Mabarrak Muskhalt, 23° 45′ N., 57° 40′ E.

Bunder Sedab: good anchorage with northerly winds (certainly not with north-easterly winds) seven or eight miles S.E. of Muskat.

Al Heran. The port is called Bunder, and the point East of the island is called Ras Heeran. The great pass into this port is round

the East end of the island. Small vessels may use the small pass to the westward. The port is said to have deep water for the largest ships, plenty of fresh water, but, like Muscat, no wood; a fine post for war.

Hesak Shek is a roadstead and village to the S.E. of Rasul Heran, 23° 30′ N., 57° 35′ E.

Ul Zatery is the hill over Cape Kuriat or Boo Dahood, 23° 42′ N., 57° 55′ E.

Aboo Dahood is the extreme of Kuriat, or it is the point near which is a small isolated rock.

Bunder Kuriat 23° 25′ N., 58° 25′ E.

Makulla Oobar. This is the anchorage, or Makulla under the Devil's Gap, 23° 0′ N., 58° 15′ E.

Between this and Zabaterry Hill is another isolated mountain, forming the western limit of the hill, in which is the gap; this is called

Jibel Huther, Green Mountain.

Daharat Rahab is the country from the gap to Theewee, which is the next high cape land; whose point is called

Ras Kathraut; near which is the anchorage called Bunder Kalhaut.

Bunder Theewee, 22° 45′ N., 59° 15′ E.

Bunder Kalhaut, 22° 35′ N., 59° 15′ E.

Bunder Soor, 22° 25′ N., 59° 10′ E.

Rasul Had (Flat Point) 23° 30′ N., 59° 55′ E.

A bare inspection of the foregoing latitudes and longitudes will show that the rude Arab navigators never made any use of them. Soor has only three feet over its bar at low water, but is a fine harbour.*

Bunder Jerahma has deep water in its entrance, which is narrow.

Bunder Hajur is also a fine port.

Sedap Cove: East point, 23° 35·1′ N., 58° 38·1′ E. Between Muscat Cove and Ras Heran, or Alarm Cape, there are said to be two Bunders or ports; viz., Sedap, about four miles to the southward of Cape Muscat; and Heran, about four leagues nearly S.E. of it.

Heran Island: East end, 23° 30·7′ N., 58° 44′ E.; variation in offing, 3° 7′ W.; in shore, 1° W. Heran is an island said to form a very fine port, with a depth for the largest ships and good fresh water but no wood.

Rasul Heran: N.E. extreme, 23° 31′ N., 58° 48·6′ E. Rasul Heran, or Alarm Cape is about four miles East, nearly, from the East end of Heran Island, and almost five leagues from Cape Muscat, about S. 60° E., and is a bold headland.

Hesak Shek: East point, 23° 28′ N., 58° 49·6′ E. Hesak Shek is an anchorage about three miles to the southward and one mile to the eastward of Cape Heran.

* We want the establishment of the tides on all these points. I presume it to be about 11h., and the rise of spring tides from five to eight feet.

Boo Dahood: North extreme, 23° 21′ N., 58° 59′ E. Boo Dahood, or Cape Kuriat, is nearly S.E. fourteen miles from Rasul Heran. This cape has a small isolated rock near its extremity, or it appeared to us to be separated from the mainland.

Gap, 23° 03′ N., 58° 54′ E. The Devil's Gap is a very remarkable feature in the high land, and an excellent mark. It is a cleft in Jibel ul Huther, or Geeen Mountain; and under this gap is said to lie the anchorage called Makulla Wabar. Anchorage 59° 03′.

Cape or Bunder Kalhaut, as described (but its precise situation was not defined by us), lies thirteen leagues near S. 29° E. (true) of Boo Dahood.

Soor: entrance, East point, 22° 36′ N., 59° 25′ E. Soor lies about S. 50° E. five leagues from Kalhaut. It is an excellent harbour, but has only three feet over its bar at low water.

Soor received the expedition from Bombay, in 1820, against the pirates and rebels (to the Sultan) at Beni Boo Alli, and whence our troops were beaten off by the Arabs.

Beni Boo Alli is at the foot of Jibel Jehallan.

The coast from Soor to Rasul Had is low, with soundings three or four miles off it, and trends a little to the southward of East in nearly a strait line.

Bunder Jerahm: entrance, East point, 22° 33·8′ N., 59° 42·5′ E. About five leagues from Soor is the fine harbour called Bunder Jerahm; which has a depth fit for any vessels, but a narrow entrance.

Hajur Bunder: entrance, East point, 22° 33·7′ N., 59° 45·6′ E. Hajur Bunder, three miles East of Bunder Jerahm is also a fine port.

We saw these two last beautiful lagoons clearly from aloft, but could not distinguish their entrances from the deck. They were surveyed by Lieut. Grub, of the H.E.I. Co's Marine, in 1820. Political events may hereafter give to the ports of Heran, Soor, Jerahm, and Hajur some importance, but at present they are only known to the Arab fishermen.

Navigators gave such conflicting accounts of the situation of Rasul Had, that the *Leven* was expressly directed to settle that point, and to adjust the plans of Captain Smith, R.N., (about 1780,) with modern authorities. The last named officer's remarks and dercriptions seem generally good; but his longitudes were extremely faulty.

Mr. Horsburgh, in his *Directory*, and Captain Moresby, in 1822, had mistaken Ras Jins, or Fairy Cape, for Rasul Had, and other authors continue the same error. Rasul Had means Flat Point, which is the definition of the name as given by the Arab pilot. *Had* has also another signification; which is, a limit, end, or termination. Therefore Rasul Had may be called in English either Flat Point or Land's End. Either signification would have set an observer right; but we had the advantage of an Arab pilot, who derived his knowledge of the names unexceptionably, and we were thus enabled to correct an error which, so long as it remains uncorrected, may continue to mislead navigators.

Rasul Had, or Flat Point: N.E. extreme 22° 33·4′ N., 59° 48·3′

E.; variation of compass 1° 3′ W. Rasul Had is a low sandy spit, on which are a few date trees and, apparently, the ruins of a small fort and village, evidently of Portuguese origin. But it is better marked by a Sheik's tomb on its extremity, and by the sudden turn of the coast from East to S.S.E.; in which direction it continues three leagues to Ras Jins (Fairy Cape).

Ras Jins, Fairy Cape: East entrance 22° 26′ N., 59° 51·5′ E. We rounded Ul Had at less than a mile from us, in thirty-four fathoms; a depth which we carried, at about the same distance, until abreast of Jins,—at a mile and a quarter of which we had forty-seven fathoms.

The mountains over Rasul Had are about 6,000 feet high, and are all called Jibel Huther as far as Kuriat, then Zatarey. The range of Jibel Huther appears to turn off about S.S.W., and the next mountain to the southward is Jibel Jehallan; at the foot of which lies Beni Boo Alli.

The shore becomes bold and formed by cliffs to the southward of Ul Had, and at Ras Jins it is composed of rocky cliffs, moderately high.

Jibel Shefannat: highest cone, 22° 23·8′ N., 58° 49′ E. From Ras Jins, Jibel Shefannat rises from the shore. The obtuse cones of that mountain mark this extremity of Arabia Felix, and are good indications for Rasul Had from the North or South.

Rasul Hubba: broken cape, South cliff, 22° 14·5′ N., 59° 49·4′ E. From Ras Jins (Fairy Cape) to Rasul Hubba, a broken or craggy cape, the course is South, a little westerly, about four leagues. The cliffs commence at Ras Jins, and continue, varying in height from thirty to fifty feet, as far as Hubba—called Jube by Captain Moresby. This point is remarkable from its rugged cliffs, about sixty feet high. We had from thirty to forty fathoms, from one to two miles off shore, until abreast of Hubba, when we came suddenly on eight fathoms on Moresby's bank; which extends about seven or eight miles along the coast, and perhaps a few miles in the offing, but is not dangerous. The cliffs terminate at Hubba, and the shore then becomes sandy.

Ras Roois: first point, 22° 04′ N., 59° 40·5′ E.; second point, 22° 00·5′ N., 59° 40·3′ E.; third point, 21° 56′ N., 59° 37·7′ E.; variation, 1·5° W. Ras Roois consists of three cliffy points, with a few sand hills from one to two miles in shore. We deepened our soundings on Moresby's bank to twenty-four fathoms when abreast of Surga Jehallan, which appears to be an island in the bottom of a bend in the shore.

Anchorage, 21° 51′ N., 59° 35·6′ E. We steered S.W.b.S. and S.W. until we anchored in seventeen fathoms, having carried nearly the same depth round the three capes Roois, from four to two miles off shore. This anchorage was not far from Allashhara, where a part of the crew of an English vessel had been formerly murdered; an event which produced the war of Beni Boo Alli.

From Rasul Hubba to Ras Jibsh the coast is formed of sand; but the base or sub-stratum appears to be of sandstone and red earth or stone, in which it seems to differ materially from the formation of the

S.E. coast of Africa. At Ras Jibsh the hills, which at first appeared to be composed of loose sand, were found to be rock, with a thin covering of sand. Although the whole has the most sterile appearance we had ever seen, there were nevertheless some signs of culture, and a few date trees were seen.

On the 4th of January, 1824, we got underway from Ul Ashhara and stood along shore, varying its distance from three to seven miles, as far as Ras Jibsh. Our soundings were from seventeen to thirteen fathoms. Abreast of Cape Jibsh we had fourteen fathoms, at about two leagues distance. The bottom was always fine sand.

Ras Jibsh: tomb on summit, 21° 26′ N., 59° 11·7′ E.; variation, 2·2° W. Ras Jibsh appears, when first seen, like an island, and is rendered remarkable by two or three hummocks. One of these is higher than the rest and crowned with an old tower or tomb; which, however, is not easily distinguished at a distance. The ras or cape is said to have good anchorage both North and South of it.

From Ras Jibsh the coast trends to the S.W., leaving a wide channel between it and Massera Island. The first part of this channel is said to be dangerous, shoaling from fifteen fathoms to eight at a cast of the lead, and by the next a vessel would ground. This low coast, all the way within Massera, is called Sheble. Our pilot said there is a good channel within Massera, but that a long reef of rocks extends from its North end—probably Abdullah Reef.

We saw Arabs, camels, and mat tents at Jibsh. The men mounted and followed the ship along shore, according to our pilot in hopes of a wreck.

At the advice of the pilot we steered off South to make Massera, and lay to, in from fifty-six to fifty fathoms, until 6h. a.m. (daylight) next morning, when we saw Massera, bearing from S.W.b.W. to S.S.W. We shoaled regularly to forty-two fathoms, and hauled in for Ras Alif or Hulf. It makes like a long narrow spit projecting from the North extremity of the island. The eastern point was called by our pilot Herah or Ya.

Our pilot was much alarmed at approaching the land, on account of Abdullah Reef, consisting of some dangerous rocks, which he described as extending several miles from the coast, and quite steep. Nevertheless we took advantage of fine weather to approach sufficiently to enable us to trace the coast-line. We shoaled gradually to thirty-six fathoms, when Ras Alif or Hulf bore about S.W.b.S., six or seven miles; and then steered South, carrying from thirty-four to forty fathoms, until within two miles of Ras Ya. We had one cast of nineteen fathoms, but deepened again immediately. The soundings varied irregularly between twenty-two and thirty-five fathoms; in which latter depth we anchored at sunset, about seven or eight miles South of Cape Ya, and as much from the coast abreast of us.

The coast forms a deep bay between Alif and Ya, appearing, from aloft to be shallow and foul.

We saw Rashish Abdulla, or Abdullah Reef, from the deck, and

our pilot said there was a good channel within it, with four and five fathoms. If it be so, this reef must cover a good port.

The appearance of Massera is as forbidding as the rest of Arabia Felix, and the attribute *felix*, from external appearances, seems to have been applied in derision. Massera, however, is remarkable for producing two harvests of dates in each year; but our Arabs did not praise their quality. Yet some modern authors (Tuckey) are not justified in stigmatizing the whole coast of Arabia Felix as not producing a blade of grass or drop of water; for, arid as it is, yet it affords good anchorage and fresh water everywhere. The Portuguese used this coast much more frequently two centuries ago than modern Europeans now do, and between Muscat and Ras Jibsh there are left numerous monuments of their ancient possessions, particularly tanks or reservoirs for fresh water. Those still remaining between Ul Had and Roois are the foci of Arab establishments; but they are never repaired or kept in order.

In the bay between Alif and Ya is a place, called Hastelleagh, where they fish for the whale. The tooth of the sperm species is in great request for sword handles, it being supposed to have a peculiar charm.

In the forenoon of the 6th January, 1824, we traced the shore to the South point of Massera, called Aboo Rassar or Rocky Head. South of it, about two miles, there is said to be a rocky reef with four or five fathoms on it, on which we saw a boat fishing.

Leaving Massera and crossing over to Ras Markas, our soundings varied from forty to ninety fathoms.

Keiverat or Shoal Cliff, 19° 22·5′ N., 57° 46·7′ E.; cliffs 450 feet high. Markas, 19° 9·3′ N., 57° 57·5′ E. Cape Isolette or Madrak Islet, 18° 58·5′ N., 57° 50·7′ E. In the morning of the 7th of January, 1824, we stood in for Markas until within five leagues E.b.S. of it, where we had thirty-five fathoms. We then shaped our course for Ras Madrak, which is the Cape Isolette of Horsburgh. There is good anchorage said to be in a small bay on the North side of Madrak. From whence the cliffs of the coast, about four or five hundred feet high, extend nearly North to Markas, and again to Keivherat—the Shoal Cliff of the San Carlos,—which is the North end of the cliff seen trending about N.b.W. from Markas. The coast appears clean as far as Keivherat, which is the part from which the shoals are said to extend that render the passage within Massera difficult and dangerous. Nevertheless, the country is populous, and a great mart for salt for fishermen and sea-fowl dung.

Of the shoals within Massera we have determined nothing further than that a course S.W.b.S. leads clear outside of them. Our pilot said that a S.W. course leads direct to Ghezirat ul Humr or to Hummer Island, which may possibly be the island seen by the *San Carlos*, as quoted by Horsburgh.

Vessels from the Red Sea are said to go annually to Ul Hummer for fowl's dung, and the anchorage is said to have twenty-five fathoms water; from which it would seem that the San Carlos Shoals have

deep water between them and the shore. But still our pilot said the whole intermediate space between Massera and the main is shallow and dangerous.

An Arabic cosmographical table in the possession of the pilot mentions Kobat Ahanatil or Hannatil Bay in 21°, or about ten leagues due North of Massera; but the coast is aid to be so shallow that even the smallest craft do not coast it hereabout. And Kobat Hasheesh, or Reef or Shoal Bay, is said to be about fifty miles S.W. of Aboo Rassas, and is noted in 19° 30′, by the Arabic table. This assigned situation corresponds in some degree to the shoals of the *San Carlos*.

Ras Madrak is a high bold cape with an Islet at its extremity. The coast is mountainous in its immediate vicinity.

Point Tagayat Abak: extreme rock, 18° 56·7′ N., 57° 48·8′ E. On the next point westward of the cape is a remarkable rock called Usheem, which appears to have been chiselled out of the hill into some fanciful shape. The production was called Tagayat Abak or Abak's Hat; which name is also applied to the low cape under it, which ends in a small rock.

In the small bay westward of the next high point S.W. of Tagayat Abak is said to be good anchorage and good fresh water.

We rounded Ras Madrak or Cape Isolette in thirteen fathoms, and hauled due West into the great bay of Saugra, and coasted its clean sandy shore until sunset, when we anchored in thirteen fathoms, at two miles from the land.

On the morning of the 8th January we continued our course to the westward, inclining southwardly, for fifteen leagues from Tagayat, and about two miles off shore in general, when we had eight and seven fathoms.

Cape Saugra: N.E. extreme, 18° 09′ N., 56° 35′ E.; S.E. extreme, 18° 06·7′ N., 56° 35′ E. We steered W.S.W. about four leagues, then South about four more, in from eight to ten fathoms, when, in lat. 18° 30′, we made Cape Saugra, bearing S.W. We then steered S.W.b.S., our soundings varying from eight to eleven fathoms, until sunset, when we again anchored, in nine fathoms, with Cape Saugra bearing S.W.¼S., four leagues. Our anchorage was in 18° 18·5′ N.

In the forenoon of the 9th of January, 1824, we steered to pass a league outside of Cape Saugra, South; where we had twenty-five fathoms. From our anchorage, the soundings varied from eight to eleven fathoms, until Cape Saugra, North, bore about W.S.W., when we deepened regularly to twenty-five fathoms, as before said. We then steered S.W., by compass, to pass about a league outside of Ras Garwow, or the Cape Chansely of Horsburgh, and deepened quickly to sixty fathoms in a distance of about seven miles; after which we had no bottom at the same depth until within a league of Garwow, due East of it, where we found twenty-seven fathoms.

The western coast of the great Bay of Saugra—which is low and apparently shallow—trends nearly due North from the Capes Saugra, about twenty-five miles; and its northern shore trends due West fif-

teen leagues. This immense bay seems to have no dangers of which the lead will not give sufficient warning. Our pilot said it might be coasted in any depth from four or five fathoms and more. We crossed it in nine fathoms, and could not see its shores in the bight from aloft. Variation of compass in Saugra Bay, 2·4° W.

We saw not the slightest appearance of vegetation or animation on any part of the shores, except at Cape Madrak, where there were a few huts and people. But between the Capes Saugra is a port used by coasters as a mart for salt.

The North coast has the most regular and wholesome soundings on any part of the Arabian coast.

The nominal dominion of the Imaum of Muscat terminates near this bay,* and those of the Sultan of Dofar and Morbat commence.

Ras Saugra, or Soogra, is the Cape Marcia of Horsburgh, and is formed of two distinct headlands, bounded by cliffs from 200 to 300 feet high. Between the capes is a small bay, in which there is said to be good anchorage in six fathoms, and good fresh water and wood to be had. There is a small stream in the first ravine North of Saugra. The steep cliffs† which bound the shores all round the great bay of Bookhalfan, or, as named in the charts, Curia Muria, begin at Cape Saugra and end at Noss. They are at the North Cape Saugra perhaps 250 feet high, and before reaching Cape Garwow they are 350 feet, and increase gradually in height, towards the high land at Noss, attaining to 1,600 feet or perhaps more.

Ras Garwow: S.E. extreme, 17° 51·8′ N., 56° 21·2′ E. Ras Garwow, or Cape Chansely of Horburgh, is not distinguishable from the neighbouring cliffs, except by the turn in the trend of the shore. We stood a little out from Garwow to connect the islands in the offing with the shore of the main. Our track to Cape Mingy was from six to seven miles off shore, and we had between twenty and thirty fathoms.

From Mingy we stood across to the bay northward of Noss Point, and then rounded the point, in thirty-three fathoms, at a league distant, and deepened soon to forty-two fathoms; which depth we preserved until we passed Ras Jinjery, at about five miles off.

The whole bay within the islands is said to have regular soundings.

Ras Mingy: South extreme, 17° 58·8′ N., 55° 45·4′ E. Ras Noss: East extreme, 17° 23·4′ N., 55° 15·6′ E. Jibel Noss Peak, or Monteval, 17° 23·5′ N., 55° 10′ E. Ras Jinjery: extreme, 17° 07′ N., 55° 07′ E. River Jinjery: mouth, 17° 00′ N., 54° 58·7′ E.

Midway between Garwow and Minjy there appeared to be a stream of fresh water. It appeared to us small, but the pilot reported it to be available, and that the fishing craft that used the coast fishery took in their salt there before they proceeded southwards by the coast

* He has since extended his dominions by a moral conquest to Dofar, Ben Akeel having been killed.

† These cliffs are all composed of sandstone, in horizontal strata, from Noss to Keivherat.

of Africa with the northern monsoon. They return always with the southern monsoon, and not only take fish and cure them, but traffic also in a small way.

Bookhalfan Isles: Jibley Peak, 17° 26·4′ N., 56° 21′ E.; Redondo Peak, 17° 35·2′ N., 56° 09′ E.; Hallany, N.E. peak, 500 feet high, 17° 31′ N., 56° 04·5′ E.; Sooda Peak, 17° 28′ N., 55° 54′ E.; Harky Peak, 17° 29·5′ N., 55° 35′ E.

The Bookhalfan Islands is the native name for those of Curia Muria or Koorya Moorya Islands. There are four of these islands; the native names of which are Jibly, Hallany, Soda or Sooda, and Harky. Our pilot had no name for the large rock N.E. of Hallany, called by Europeans Redondo, because it is supposed to belong to Hallany. Jibley is the Deriabi of Horsburgh. Our pilot describes this island as being foul all round, with a reef extending two miles from its western side. By his report also, Redondo is joined to Hallany by a reef; and a reef extends from Hallany very close to Sooda, leaving only a very narrow passage close to the shore of Sooda. By the pilot's description, and on his authority, those dangers were marked in our chart; but I now learn that the reef between Hallany and Sooda has no existence, and should be expunged from the chart.

In proof that the islands of Hallany and Sooda are joined by reefs, our pilot said that a large Bengal ship was lost there (probably on the reef between Hallany and Redondo) in 1820 or 1821, in attempting to pass between them; and that all her officers perished but most of the Lascar sailors were saved.

We understood Sooda to be the only one of the islands inhabited. It is said to be the only one that has water. Its town and bunder are on the N.W. end. All these islands are visited to collect seafowl's dung.

Ras Morbat: extreme, 16° 54·2′ N., 54° 47′ E.; variation 3° W. On the 11th January, 1824, we were off Morbat Point, when a strong breeze came on from the westward. Having obtained observations for the situation of Ras Morbat (its latitude was obtained by our observations at noon in its parallel), we could not spare time to waste against a foul wind; therefore stood across for Socotra.

On the eastern side of Cape Minjy there appears to be a stream of fresh water and a break in the cliff on the West of it; but we could see nothing between.

Jinjery River is also said to be made some use of by the coasters.

Ras Noss, or the Cape Monteval of Horsburgh, may be considered as the western limit of the great bay of Koorya Moorya; and there appears, and is reported to be, good shelter on its North side from S.W. winds.

The high range of Morbat Hills take their rise at Noss, which is surmounted by a Sheik's tomb. The general height is about 3,500 feet, and Noss Peak about 5,000 feet high. The Bay of Noss also is said to have abundance of fresh water. We saw Noss Peak clearly when seventy miles off, or when off Cape Garwow.

Thus, in ten days, we traced all the points most important to navi-

gation in a distance of about 150 leagues, and have at least restored many of the true names; and have given, it is believed, a true report of their geographical situations, which, from the various contradictions in the existing records, had become quite necessary.

The charts were intended to show not only what we had done, but what yet remained to be done.

It was much to be wished that our traces would, long before the lapse of ten years—which have expired since these operations,—have been rendered useless by actual and close surveys, and that such an imperfect description of the coast as I could furnish would never have been required.

W. F. W. Owen.

Jersey. August 12th, 1834.

Note.—We remarked that the coast of Arabia seemed more favourable to beat up against the N.E. monsoon than the coast of Malabar.

Extracts from the Journal of Capt. M. S. Nolloth, H.M.S. "Frolic."—*St. Augustine Bay, Quillimane, &c.*

(Continued from page 143.)

As I intended to make but a few hours' stay, we anchored in 8 fms. between St. George's island and the Cabeceira shoal—about 3 miles from the harbour, which is on the opposite side of Mozambique island.

It was blowing too fresh to admit of landing in a ship's boat until the evening: in the mean time a small craft worked out to within a short distance of us, then suddenly shortened sail and bore up for the harbour. It lulled before dark when I landed.

The Governor-General received me with the courtesy which I believe is invariably extended to British Naval Officers by Portuguese officials abroad: he expressed his regret that an accident in a squall had prevented his yacht from fetching the ship and taking me ashore—invited me to remain at the palace during our stay in port, &c. He had no information to impart concerning slave matters, not having heard even a rumour of a Slaver being in the Channel, for a considerable period, but he alluded to various attempts by French agents to procure Africans from the Portuguese Possessions as "travailleurs" for the sugar plantations of Bourbon—a practice against which he had remonstrated with the Governor of that island who had declared that it had been unauthorized and should be discontinued. He spoke energetically against the slave-trade, and inasmuch as His Excellency was sincere, his expressions must not be considered as a mere indication of the traditional hatred of Portuguese Officials to "the infamous traffic in human flesh."

The town of Mozambique, although now in a declining state, conveys a favorable idea of former prosperity and of the stability of the Rule of the early Colonists in these parts. The city covers about half the island which is low, very narrow, and about a mile and a half in length, but houses and huts are scattered nearly throughout its extent. The streets are narrow: a great portion of the houses are of stone and well-built. The island is of coral formation.

Mozambique and the neighbouring coasts had recently suffered severely from virulent small-pox. I was informed that 8,000 people had been carried off by it, and that the inhabitants of the island itself had been decimated—750 having perished of about 7,000. Vaccination had latterly been resorted to, but I was told that the operation itself had seldom been successfully performed—possibly from the very great heat and moisture of the climate having destroyed the specific effect of the virus imported.

Our old friends the Banians seemed almost as numerous here as at Zanzibar. There are no British Merchants on the island, nor on the main-land where, from the climate being cooler and more salubrious, the Europeans and Creoles who can afford it have country residences. The island has always been considered inimical to the European constitution, and the appearance of all whom we saw tended to confirm its bad character.

Some of us were invited to an evening entertainment given by a rich Banian in a small room so crowded by Indians sitting upon their heels, that it was almost impossible for a late-comer to plant his foot upon the floor without disturbing the nice balance of several doubled-up guests. The entertainment consisted simply of an unceasing and unmeaning strumming upon the wretched stringed instruments used throughout the East, accompanied by nasal performers, who with apparently closed mouths vented most inharmonious, squeaking sounds, compared with which the stringed monotony was a treat. Windows and door were kept closed, but the silence and earnest listening of the company betokened great enjoyment: as soon as could be, without giving offence, we escaped from the entertainment of discordant sounds in a hot mephitic atmosphere.

Wishing to sail early next morning an attempt was made to reach the ship in one of our boats, but the breeze had freshened again with a chopping sea, and we were obliged to put back. The Governor-General again came to our assistance, but in vain: unfortunately it was a Saint's day, and although by strenuous and repeated efforts on the part of an Aide-de-camp and some Dock-yard Officials two or three half-drunken negroes of his boat's crew were now and then found and driven down from their haunts to the beach, they invariably contrived to escape after the performance of some trifling job. I believe that in the Portuguese Possessions the only attempt of the negroes to conform to the religion of their masters consists in their strict observance of the holy-days of the Church as seasons for idleness and debauchery, and I was deprived of all hope by a Creole looker-on assuring me that every one of the truant crew would rather receive a good flogging in the

morning, than do the slightest piece of work for any sum of money on a holiday.

On the following day we returned to the ship and put to sea, having experienced great civility from Senhor Juan Soares, a Portuguese mercantile gentleman whose hospitality and obliging attentions have long been known to all Naval Officers visiting Mozambique.

It is said that fatal mistakes have been made by vessels, at dusk or in obscure weather, confounding the flag-staves of St. George's and Mozambique islands—when one only has been seen—and running on the shoals to the southward of St. George's. It seems difficult to conceive how such a mistake can occur, when anything besides a flag-staff is visible, if it be recollected that there is no large building on St. George's, near the north extreme of which its staff is erected, while the staff near the north end of Mozambique is at the extremity of a long and imposing-looking line of fortification.

In pursuance of the Commodore's instructions we should have touched at Angoxa, an Arab settlement to the southward, but two Portuguese vessels-of-war with troops and military stores were on the point of sailing, and the explanation given me by very good authority of the supposed object of the expedition induced me not to risk our existing very friendly relations with its Sultan—with whom the boats of our squadron had at the instance of the Portuguese had a smart brush some two years previously—by making our appearance at Angoxa at the same moment, and we steered for Quillimane.

Having experienced, at from twenty to thirty miles from the African shore, a favorable current of less than a mile an hour in about the direction of its trend, we arrived a second time off the mouth of Quillimane river, and on the forenoon of the 8th anchored in less than 8 fms., about eight miles from the shore.

By former experience, and by the fact of lives having been saved on more than one occasion from an overturned boat by her companion, I was induced to employ *two* boats (as I would advise any officer to do when visiting this river, especially if there be a chance of returning with heavy mess stock which is sometimes plentiful here) and, taking the boat passage with the pinnace and cutter, we entered the river with no difficulty, although now and then a towering wave, as if too near the bottom to feel itself comfortable, put us by its sudden and confused heave rather on the alert.

At Hippopotamus point we passed—according to my coxswain—the same three monsters of this name that we had left there nine weeks before in the same position; viz. half immersed and half exposed to the rays of a scorching sun. We fell in with a greater number of these huge creatures than we had seen at our first visit, but were not once favored by any one of the bellowing, snorting, neighing, grunting sounds, to every one of which, according to their mood, they are said to be addicted. Two only—a cow and her calf—were seen on terra-firma, or rather on a half-tide sand-bank, and my clearest idea of the animal's form is derived from a recollection of the famous and more accommodating fellow in our Park Zoological Gardens. The western, and pro-

bably also the opposite bank of the river is covered to below high-water mark with mangrove bushes, and on the slimy shores we saw occasionally the tracks of hippopotami on their way to their grazing grounds in the adjoining plains. I was surprised to see no canoes in pursuit of them, as their canine teeth, which are of excessive whiteness and very hard, are much valued in Europe and are for many purposes preferred to the best ivory. We saw no alligators which are said to be numerous higher up, but plenty of large birds as adjutants, pelicans, cranes, and other long-legged varieties.

On arriving at the town, which is about 15m. from the entrance, we found that the Governor had returned from Tette, which he had left on the 1st Nov., up to which time no news whatever of Livingston had reached the Settlement. He had received by express my communication with the Commodore's letters, &c., left with the Commandant at my first visit, and assured me that his own residences at Tette and at Senna had been prepared for our enterprising countryman, in the event of his arrival.

The insalubrity of this place, and of the country higher up, is well-known: this circumstance and the infrequency of opportunities of leaving it by ship had induced the British Government to cause a vessel of war to be on the spot at the time of his expected arrival. They had been informed of his having reached St. Paul de Loando on the West Coast of Africa from the Cape of Good Hope by land, and of his having left it near the end of 1854, with the bold intention of striking across the vast continent to Quillimane on the west.

I have already mentioned the great mortality among the Portuguese troops sent from Lisbon to prosecute the war at Tette: the three Surveying Officers sent by Owen to Senna, about 180 miles up the river, perished there of fever, and more recently Captain Dacres and Lieut. Loch of H.M.S. *Nimrod*, died at Mozambique of fever contracted a fortnight previously at Quillimane. At the Cape I had heard the fate of the latter officers attributed to their having slept with open windows contrary to the remonstrance of their host, but on inquiry here I was assured that the disease resulted from violent exercise and exposure on a shooting excursion such as no acclimatized Portuguese would have ventured upon. Excepting pestilential "Grey-Town," at the mouth of the San Juan de Nicaragua, Quillimane is the only one of the many sickly places I have visited, at which every inhabitant I saw, of whatever colour, wore the aspect of disease. The Commandant, whom with little exaggeration I may describe as a living skeleton encased in brown parchment, was suffering from an attack of fever, but was chatty and very cheerful and smoked his strong cheroots with great apparent goût: he had arrived as a boy in 1823, and laughed outright when I seriously asked him how many times he had been attacked, saying that "he had never kept a journal."

The constant moisture of the land on which the town is situated must conduce to its extreme unhealthfulness: I observed several wells about 10 feet deep a few hundred yards from the river-side, and was informed that, for a considerable distance from it, fresh water may be

found at the same depth throughout the year. As the adjacent land is little elevated above the medium level of the river, anything but the merest surface drainage must be impracticable.

Lions and tigers made frequent visits to the town formerly but I was told that none had for some time past been seen: there is probably something more than a mere coincidence in the discontinuance of these visits with the disuse of the place as a great repository of dying, as well as living, negroes for exportation.

On the 9th we left Quillimane for the ship, but the pinnace having missed the boat-passage at near low water was obliged by heavy breakers to put back and pass the night inside of Tangalone point. It was then discovered that sundry "monkey jackets," and other articles of warm clothing much needed after a scorching day for protection against the cold and heavy dew, were missing. We had been welcomed on both occasions by a guard of miserable-looking almost negro soldiers, and although, for want I suppose of more stimulating pastime, they spent the whole day in eager hunting on each others woolly preserves, they were for their supposed civility kindly treated by our blue-jackets, never over-suspicious of the advances of strangers in a strange place, and I know that more than one libation of rum-and-water in a pannikin had been poured out, or rather down, between them: but it was clear from the confession of a boat-keeper who after dark had absented himself, "only for a moment," that the scurvy fellows whom he found skulking near her on his return were the robbers.

On the following day we stood in to 5 fms., picked up the pinnace and made sail to the southward. It may be useful in cruisers' boat-work to recollect that off the mouth of Quillimane river the soundings increase at about the rate of one fathom in a mile, from 5 fms. to 15 fms. In 5 fms. you are about 4 miles from the shore (which for reasons already given is too near), and at 15 fms. you are about 15 miles from it, and so intermediately.

While crossing the parallel of St. Augustine Bay, our savage friends, whom I had expected to revisit, were recalled to my mind. I should have said in my previous mention of this place that cattle for salting and shipment to Bourbon—grain of various kinds—dye-stuffs of, I believe, three different species—and various gums, one of which, being of aromatic nature, has been used in Roman Catholic Churches as incense, appeared to be bartered by the natives to the two resident Europeans for the merest trifles, such as beads, bugles and ear-rings, necklaces, bracelets and nose-rings—dazzling riches upon which I saw a crowd of longing negroes feasting their eyes, as a chest full of them was occasionally half-opened and quickly shut by the judicious salesman to excite their cupidity.

I wondered that the natives had never been tempted by the display of such treasures to deeds of violence—recollecting the massacre of Owen's officers in Murderers' Bay, and the more recent destruction of a Lieutenant and several of the launch's crew of the *Cleopatra*, under the very eyes of the frigate's company: but miserable as they are they have something to lose on the spot upon which they are settled

and were born, and must know that in the long-run it must prove a losing game. On my reminding the Prince of Wales of these sad events and endeavouring to impress on him the horror that such deeds should excite, he quite agreed with me that it was "plenty no goot," and by the help of his *Secretary* gave me to understand that they were all very "bat" people round about the St. Augustines, who, themselves, were "plenty goot."

This Secretary, I need scarcely say, did not pretend to be able to write, but he was exceedingly voluble in slang phrases picked up from whaling vessels, and was evidently thought a great deal of by his countrymen, and by himself: when I visited the village he informed me in a ceremonious manner that "the 'Prenz Wah' would come see de Man War" on the following day. The Prince himself who is about 70 years old, was very taciturn, and it was clear that he was placing great restraint on his natural inclination for the sake of his supposed dignity. His mat and bamboo house which was near the centre of the village, was much larger than the others, and from one of the corners outside, a long tapering bamboo was rigged out like a fishing-rod at the end of which, fast to a short line, dangled something wrapped up in a bit of rag: on inquiry, he informed me that this was a propitiatory charm to ensure the safe return of his daughter from a trip into the interior.

The old Chief's visit was made according to promise: he was accompanied by his son, a fine-looking, well-built young man with nothing of the true negro type about him but his colour: his hair from the crown of the head outwards was divided into many concentric circles of plaited tails knotted at the ends, which rising and falling, or merely dangling according to his movements, had a not unpleasing effect. The Prince himself was sadly disfigured by a well battered beaver hat procured from some American whaler, which he had thought proper to mount on the occasion. He remained in the canoe while the Secretary jumped nimbly up the side and announced that "Prenz Wah come see da Carpen" and the old gentleman and his six followers were received and entertained apparently to their great satisfaction.

None of them recognised the name of "Tom Bravah," but the Secretary played much the same part as that by-gone functionary and was in all respects his parallel. He greatly magnified his Chief, who sat silent the whole time, and in the same breath informed me—I thought rather inconsequentially—that his Royal Highness was fond of gin. St. Augustine is frequently visited by Whalers, especially Americans, and it is well that a friendly feeling should subsist: they seemed much pleased with our efforts to amuse them and with the trifles bestowed—the Secretary carefully intercepting everything offered directly to his Chief, and feigning much anxiety to prevent a sordid fingering derogatory to the great man's rank. At the same time he was not unmindful of his own interest, and with the mixed cunning and simplicity of a savage, generally prefaced a request—always "for *the princë*" —with the most obvious flattery. One of his modest requests was for a five-barrelled revolver which I had exhibited, but it is right to say that—with a few here-omitted expletives—he had

just before tendered for the acceptance of my organ of "self-esteem" the following statement as an equivalent: "Carpen! I plenty shippee see—Englezee shippee see—Franzee shippee see—Meriky shippee plenty see—man war shippee see—neber see man war shippee like dis—neber see all de same Carpen like you;—*fuss-rate!*"

The St. Augustines did not add much to our knowledge of their island, of which indeed excepting their own immediate neighbourhood they appeared to be almost as ignorant as ourselves: but much must be put down to our imperfect means of communication.

The French who have possession of the islands of Mayotta and Nos Beh (or Mayotte and Nossi Bé as they term them) on the N.W. Coast of Madagascar have suffered severely from fever from the commencement of their occupation. Both islands are well fortified, especially Mayotta where extensive works containing all necessary stores for a military expedition have been collected: defensive works are still in progress at Nos Beh. I could not ascertain the number of troops stationed there, but was informed by a Mozambique trader who had visited the islands, that so may soldiers perished from fever about two years ago that all but a few had been sent to Bourbon, and that Negroes had been employed in their place. A small vessel-of-war keeps up a regular communication with the latter Colony.

Queen Radamah is said to have some fifty thousand tolerably trained troops (the affair of Tamatava showed that they are not to be despised), and it is known that the greater portion of the coasts of her island is extremely noxious to the health of Europeans, but it is said that a great part of the extensive table land at a moderate distance from the sea is of a very different character: and besides, it is probable that the various tribes and races subjugated—enslaved—by the ruling Hovahs would welcome present deliverance from any quarter, although it might ultimately prove but a change of masters.

The Queen of Madagascar has driven her best friends, the Missionaries, from her councils and from the island, and may not be now quite au courant of European doings, but she is intelligent, and probably regards Mayotta and its Dependencies with very uneasy feelings, and as a Sebastopol abiding its time.

The Sultan of Johanna was requested by the Governor of Mayotta to allow him to open an establishment on the island for his sick men: although there may have been no sinister object, perhaps he was well-advised in offering to receive and take care of any sick whom circumstances might make it convenient to leave for a time, but declining permission for the erection of a regular hospital.

The Governor of Mauritius informed me on our visit to the island before entering the Mozambique Channel, that he had by letter expressed to Queen Radamah his regret at hearing that the heads of the Sailors, Marines, and Soldiers, who fell in 1854 in our attack on the town and defences of Tamatava in concert with the French, were still on poles around the town, and had suggested that it was quite at variance with the practice of civilized nations. His Excellency received a satisfactory but rather quaint reply: the Queen concurred in the

friendly observations made by him—admitted that we were now on very friendly terms, as proved by English vessels visiting Tamatava without molestation, and concluded by informing him that "he might send a ship and do what he pleased with the heads." The melancholy trophies were removed by a French vessel-of-war to Bourbon and there interred.

(To be continued.)

SAXBY'S SPHEROGRAPH.

Sir,—I am desirous of recording in the pages of the *Nautical* the further developement of the Spherograph, if you kindly permit me so to do.

Thanks to the exquisite accuracy of Mr. Powell, of the Hydrographic Office, such is the perfection of the engravings, that nothing more on this point can be desired. I am only doing justice to the liberal encouragement proffered to all improvements by your so widely appreciated Magazine, when I proceed to inform the mercantile marine through its pages that the Spherograph in parts, each complete in itself, has been used at sea for upwards of three months, under all circumstances, and that testimonials, spontaneously tendered, accumulate to my entire gratification. But so simple is the instrument in itself, that I need not presume on troubling your readers with letters, ready however to forward copies of them to any authorities who might desire further information, or to see corroboration of their own convictions.

You have already allowed me to say much upon compass evils, and with a due feeling of deference, I have plainly urged a revision of the whole present system, nor has any one of your correspondents opposed my views. The prominent question now seems to be,—"Shall we swing ships in dock any longer as a positive and perfect safeguard, which, resulting in a so called *correcting card*, is to guide the commander on his voyage in confidence and security." In justice to compass correctors in general, I trust the following statement will answer the question.

In November last an iron ship called the *Sappho*, of Liverpool, left the Mersey on a voyage to Rio Janeiro, and, to use Capt. Robertson's words, "from the extreme care taken in the operation" of swinging and adjusting, the bearings being "checked by a scientific member of the Liverpool Compass Committee, no ship ever went to sea apparently better prepared against compass errors,"—and I am informed that such corrections were reliable and valuable until when abreast of Holyhead a South-easterly breeze sprung up, and soon after a large error was detected by the very experienced and wary captain, who,

instead of sighting Bardsey Island, discovered himself on the Irish coast about Wicklow Head. The captain wished the public to know that "these facts are stated to show that much confidence ought not to be placed upon tables of corrections obtained by the present method of comparing compasses on board ship with compasses on shore." He, moreover, says, that "it would prove much more to the purpose if tables of errors were deduced from observations of a distant object the true bearing of which is known or may readily be found. Corrections should be given for the combined effects of variation and local attraction, as it is done at sea, by one application. The present method of giving the deviation for local attraction only is extremely liable to a misapplication when coupling it with the variation. It sometimes confuses the mind, when first getting out to sea, and doubts arise how to allow for the two taken separately, and the table is gladly thrown aside when an observation can be got." Capt. Robinson thus speaks from experience, and wished to render his mite to the public treasury of nautical science.

It is of smaller importance to me than it is to the public to acquaint those interested in safe navigation, that Capt. Robinson happened to take with him a roughly made spherograph, being its first sea trial, therefore I pass over all his high commendation of my instrument as used under such trying and anxious circumstances: but notice his suggestion "that the spherograph may be adopted when swinging a ship to check the compass ashore."

I have during the past year seen much of compass correctors, and can testify to their anxiety to discharge their most responsible duties with every care and safety to ships, nor can I believe that any one of them would have felt annoyed by so useful a hint had it been published as requested by a contemporary. And what if he did? For my part I will boldly attack under the very guns of all the authorities of the kingdom, so insidious and so dangerous an enemy as local attraction wherever I can detect it. We all need arm ourselves with every available weapon of offence, be it spherograph, or magnet, or soft iron, or any other prevention. As a further proof for the necessity for unflinching plainness in exposure of everything which has a bearing on or pretension to the elucidation of fact connected with compass deviation, let me add a second instance of providentially averted danger, which occurred also this winter near the Mersey.

An iron screw steamer left Liverpool to proceed down Channel; the weather was moderate but hazy. Her magnetic condition had been previously uniform, even when having some 300 tons of iron cargo on board. On this occasion, however, no sooner had she commenced her sea voyage, than so great a change suddenly took place as to run her head on towards (I believe) Constable Bay on the coast of Anglesea. Her supposed W.N.W. course proving to be in reality a W. ½ N. course! The usual correcting card here became suddenly useless. In this instance again the spherograph was a means of allaying further anxiety on the part of Capt. Harrison, a most careful commander. But even after his three months further practical ac-

quaintance with the spherograph, I need not trouble your readers with his kind and strongly expressed testimonial of its merits. It is enough that he is a competent judge of its utility as a man who has made more than seventy passages down the Irish Sea in the command of steamers.

With such facts before us, and I could adduce others, surely their public circulation is a public duty. While, however, we see that no precautions can render the swinging of ships infallible, it is in a large majority of cases a valuable preventive of accident, especially in voyages where fogs and thick weather prevail at certain seasons. Why, a commander this day informed me that on a recent occasion he had deemed it prudent "to pitch his correcting magnets overboard," because the state of his ship had altered, and they "only bothered him." Had he possessed the simple arrangement for adjusting his magnets, he might evidently have retained in his service a valuable servant, especially when celestial objects were obscured by fogs or clouds.

With regard to the developement of the Spherograph, I have further respectfully "to acquaint all whom it may concern," that since my last communication in your pages I have perfected the Spherograph for use with the Compass, the working of Azimuths, Amplitude, Latitude, Time, &c., by inspection; and have succeeded also in still further simplifying and completing a system of Great Circle Sailing so plain and easy even to a tyro in navigation that it is now much easier to find a Great Circle Course without putting pencil to paper, but by merely looking at a table, than it is to find a Mercator's Course—and this holds good under every variety of question which can occur, to the total and perfect working of a system becoming highly appreciated in the merchant service. It is founded on the following:—A Captain always when at sea knows, without any reference, his latitude in—his difference of latitude to make good, and his difference of longitude to make good These data suggest a spheric triangle, having two co-latitudes and the included difference of longitude as the two sides and included angle thereof. Further, a ship will always be about either to increase her latitude, to decrease her latitude, or to sail upon a parallel. Hence I form three tables of great circle courses, and with as much ease as we find the day of the week from the day of the month, we see before us our required course, or literally as easily as in a multiplication table and in the same way that we find that (say) 7 times 8 = 56; and while all this simplicity saves time to a navigator, the Spherograph accompanying the tables explains the "why" and "wherefore," and tempts and encourages him to peep beneath the surface of a heretofore abstruse operation. With equal simplicity distances are measured at sight. I have moreover succeeded in producing another form of Spherograph, not before named to the public, in which one may most easily clear a lunar distance from parallax and refraction—and this even to seconds. As an example, the question on page 12 of Thompson's Lunar and Horary Tables comes out as follow:—the correction taken by inspection without dividers, &c. from the Spherograph gives 37′ 25″, and this multiplied by a certain tabular number from my accompanying table, produces

a second correction which applied to the observed distance brings the distance as corrected by Spherograph 91° 20′ 14″, by Calculation 91 20 11″—Error 3″; and it must be remembered that Troughton, one of the most accurate of instrument makers, declared his belief that no sextant can be relied upon at sea to within 15″.

My humble communication has unfortunately been delayed until now from an unmistakeable infirmity produced by the labour of forming the Great Circle Tables, which alone involved the use of more than 25,000 logarithms, and which nearly cost me my life. But with the strong encouragement of at least 1,000 merchant captains, who have recently sought me out, on this subject, it was impossible to desist from the work. If spared a few months longer, I hope to perfect a new Handbook of Navigation, simplifying the path to Spheric Trigonometry and rendering it more attractive to sailors.

I have, &c.,

S. M. SAXBY.

To the Editor of the *Nautical Magazine*.

[The remarks of our correspondent (who is justly warm with his subject considering its great importance), apply we presume to the mercantile marine. In respect of those about "compass correcting magnets," we have nothing to add but that we have always been of opinion that another evil is introduced by the use of them. But in regard to the system of forming a table, with variation and deviation combined, it appears to us so mischievous that we could not imagine such a thing was ever gravely intended. The difficulty supposed to exist in making two corrections one for variation, and the other for deviation is quite imaginary, when it is considered that the deviation has only to be treated like the variation. It is either easterly or westerly, and should be treated as a second variation, and like it applied according as it is Easterly or Westerly. Indeed Capt. Nolloth whose elegant method of shewing the amount of deviation on its own point, on a skeleton compass card (or on a piece of transparent paper to lay on the compass) appears in our number for Nov. last, proposes to distinguish it by the term "*ship's variation*" as the other is called "*magnetic variation.*" But whether this or not the seaman *can never* be at a loss how to apply the deviation, when he is told it is always to be applied according to its name Easterly or Westerly in the same manner as is the "magnetic variation."—ED.]

THE PEIHO.

A tolerable opinion may be formed of the small depth of water in this river from the following extract from the narrative of Lord Macartney's embassy in 1792, by Sir George Staunton.

"The Peiho and other small rivers in the North of China, are partly fed by the melting of the snow in summer on the tops of the Tartarian mountains. While this operation of nature continues, the rivers are deep and fit for the purposes of navigation; but towards the end of autumn, when the sun's oblique rays fall with less effect upon the earth, and the melting ceases, those rivers become so extremely shallow as well as slow, that *boats* of convenient size can no longer pass upon them, even before the supervening frost imparts solidity to their diminished and sluggish waters. The mandarins who attended the embassy, and were aware of the extreme fatigue and inconvenience of travelling much by land in China, especially in winter, hurried every preparation in order to get upon the Peiho, while it was yet navigable." The foregoing refers to the passage of the expedition up the river in August, 1793.

The following is on the return of it in October. "While the gentlemen of the embassy were for the last time examining the temple and visiting the city of Tong-chow-foo, their attendants, Chinese and English, were engaged in preparing all things for embarkation. The yachts were ready at the water side." * * * What these yachts were appears as follows. "The embassy was not detained above a day at Tong-chow-foo (7th Oct.). The waters indeed of the Peiho were already low, and continuing to decrease. In a few days more, they were likely to be too shallow to float the yachts, and it would have been equally uncomfortable to travel by land or in small open boats.

"The yachts now used were of a construction as light as possible, consistently with the convenience of the passengers. They had no upper range of apartments for the people, and admitted very little baggage below the floor. They were about seventy feet in length, and fifteen in width, flat bottomed and drawing scarcely ten inches water. Notwithstanding which they were dragged by main strength over some shallows in the river on the second day of the embassy's embarking on it. Beside the cause of diminution of the river mentioned in the beginning of this chapter, another not so constant contributed in this season towards it. The weather had been remarkably dry for some months past—not above a shower or two had fallen to supply the evaporation since the month of July."

It appears also that "in many places the bed of the river had been raised above the adjoining grounds by the gradual accumulation of soil upon its bottom and by the accession of new mounds to prevent its inundation."

"In three days (from Tong-chow-foo) the yachts arrived at the spot where they met the tide; the ebb of which aiding the current of the rivers brought them in another day to Tien-sing when the embassy left the Peiho and proceeded south by the river Yung-leang-ho.

Many of these yachts as they are termed, "in which the embassy had ascended the river were eighty feet long and very capacious, yet they are built of such light wood and so constructed as not to sink more than eighteen inches into the water, though they were lofty above it." Those in which they returned, as appears above, were of a lighter

description and scarcely drawing "ten inches" water had to be forced by main strength over mud banks.

The same authority informs us that the tide reaches thirty miles up the river, and we repeat the following from our volume for 1853, quoted by Capt. Cracroft in his interesting remarks on visiting this river.

"The bar of the Peiho runs N.N.E. and S.S.W., it has three or four feet on it at low water, with six or seven feet rise at springs; high water at full and change 3h. 30m. Five or six miles outside the river is a bamboo beacon, with a row of bamboo stakes, continued to the shore; these stakes are to be kept close aboard on the larboard side. After clearing the bar the course is W. by N. by compass in the best channel; the river is here one-third of a mile in width, with three fathoms at low water. The expedition (with Lord Macartney) crossed the bar at spring tides on August 5, 1793.

"The above remarks by Capt. Campbell of the *Jackall*, the *Lion's* tender, are extracted from Sir George Staunton's valuable work on China, and they may still be considered the best directions for the navigator, although fifty-seven years have elapsed since they were penned."

Pekin is about a hundred miles in a direct line N.W. (true) from the mouth of the Peiho, and Tong-choo-foo about eleven miles below it; while the town of Tien-sing which is at the junction of the Yun-Leong-ho with the Peiho is about thirty miles W.N.W (true) from the mouth. From Tien-sing to Tong-choo-foo the distance by the river is about ninety miles. On the whole we may look on the Peiho as a sleepy shallow stream, owing all its celebrity to its proximity to Pekin, and its navigable character to the assistance of the tide which reaches thirty miles up the river, and that between Tong-choo-foo and Pekin in a dry season in the fall of the year, it is scarcely passable in boats.

Desertion of Seamen and Crimps in Quebec.

Quebec, November 27th, 1856.

Sir,—Much has been said through the press here about desertion of seamen, crimps, &c., and your having strongly taken up the subject induces me to address you. The military have been asked to interfere. This would be very unwise and impolitic, as it would bring them probably into hostile collision with the inhabitants. The government would act unwisely to employ troops for such a purpose. Men-of-war have been called for. These would be quite useless in so large a port as Quebec. They might probably, by rowing round the port day and night, prevent some men from deserting as long as ships remained in the stream, but they would be utterly powerless when vessels come alongside wharfs and blocks, which they all do to load.

Different writers say much about the laws being more rigidly enforced. Of laws there are plenty, both under the imperial and colonial statutes, but until lately they have seldom been attempted to be used, and even should they be enforced, the desertion may be somewhat checked, but will never be stopped, for the reasons stated hereafter.

None of these complainers have, in my opinion, hit upon, or even hinted at, the right mode of securing what is so much desired, and what has in plain truth given rise to these numerous complaints. Of cheaper means to stop desertion in these colonies many have, and all may give up the idea as hopeless; it cannot be done.

The plan I have for the last twenty years proposed—and 99 out of 100 masters and owners who understand the ways and doings of the place agree with me—is to ship men to the British North American colonies, and there pay them off. Then any man who is not satisfied with his ship, Captain, or officers can re-ship, should he see fit. And then to secure low wages and no detention of the shipping for new men, there should be four or five Shipping-masters, as the port extends nearly seven miles. They should have no fixed salaries, but depend on their assiduity and attention to business. Competition for patronage here, as elsewhere, would insure ready attention and low wages.

It has become customary for some time past to say and write much about crimping, &c., in Quebec. Why, Sir, it is well known here that this port is not a whit ahead of St. John and the lower ports in this respect, where little is said about it.

To show you why I have long since come to the conclusion to pay off men in the colonies, and have a number of shipping-offices independent of each other, and without any fixed salaries, I will endeavour to give you a short history of the ways and doings in the port of Quebec for the last seventeen or eighteen years. I am fully conversant with the facts which I state, and am confident that owners and Masters frequenting the port, who understand the matter in all its bearings, will bear me out in my assertions.

About eighteen years ago the British owners complained not so much about wages—for at that time there were three distinct Shipping-masters, and competition among them kept wages from £3 10s to £5 and £6 generally—but that the Quebec builders built many vessels and manned them with men stolen from their old ships; so, to throw dust into their eyes, and for a time stifle these complaints, the builders in Quebec, as well as some of the merchants there who supply them with money to build ships, persuaded the British owners, as well as the masters, to voluntarily impose upon their ships a tonnage duty to support a river police. Many submitted, but others did not, and particularly the builders. Since then an Act has been passed to make it imperative on all to pay.

These river police were soon found to be nearly useless to stop desertion; indeed, it has annually increased up to the present time. You may ask the reason. Why, Sir, upon the introduction of lime-

juice, &c., and tickets—both properly enough since abolished—men became disgusted with the former, and sought every means to get away from their ships, and, if omitted to be regularly served out, applied to some pettifogger, and frequently whole crews were discharged for non-delivery. With tickets men became more disgusted, because it had the appearance of favouring the foreigner over the British subject, as an Englishman in his own country could not ship without one, whereas a foreigner, who had perhaps only been a few days in the country, could walk into a shipping-office and, before his eyes, ship without one.

Another thing you must be aware of is that many *leaky, crazy, worn-out vessels are sent into the timber trade, and that men are often pumping day and night for their lives!* Can you expect men to stay by such vessels, and make passages home in them? No, they will not, and long before they get to the outward port they make up their minds to leave them, and they will do so at all risks. Then there are many harsh and unfeeling Masters and Mates, who, to show their little authority, work up the men day and night until they are uncomfortable. They will not, they cannot make the voyage, and the first chance they get they are away. A landsman has some chance, a seaman has but little. If the former makes a bargain with his employer, and he is properly treated, he will most likely complete his contract; if improperly, why he can apply to the authorities at once for redress. Not so the seaman: the law precludes him from any redress abroad, except criminally; he must go home, and sue there.

The South side of the harbour extends a distance of more than six miles, and on the North side upwards of seven; and all along these distances ships load at wharfs and blocks, and the banks of the river, particularly on the city side, are studded with the dens and hovels of crimps, sailor-stealers, stores and houses of others who are interested in this nefarious practice—any of whom will help a seaman away. Men desirous of running from vessels have rarely more than twenty yards to go to enter any of these places. Then what is to prevent men wishing to leave, even should they be narrowly watched by the Captain or his officers, from doing what hundreds do, viz., work their clothes ashore, as they term it, by putting on two or three pairs of each article, walking into the crimp's house, then casting them off, and going back for more. Thus in a few days or nights the crew may work out all their dunnage, and finally walk away themselves, leaving perhaps in the forecastle a few empty chests. Could any military, men-of-war, or police prevent this, which is of frequent occurrence? No.

Then, should the men have any suspicion, or should the crimps hear by any means from the police or the ship's watchers, that the Captain is looking after the men, why they are either sent into the country miles away, until the ship sails; or, should the men have any money, they can make their way by the numerous steamers or railroads up the country to the Upper Lakes or to the United States, where they are more than likely lost to England for ever. Indeed,

she has already lost shoals of her best men; they are either in the United States, California, or Australia, and I am afraid that, should the present system be continued at home as well as here, she will lose many more.

The American naval as well as mercantile marine are chiefly manned with the best of British seamen, as there they enjoy what Jack calls freedom. No police hunting after them, no gaol stares them in the face; they stay by their ships as long as they like, and quit when they choose, and in all their ports they have abundance of shipping-offices. No man has any salary, what he makes he keeps; this creates competition for patronage, and their wages vary from sixteen to twenty dollars a month, and they make liberal advances to the men.

In 1848, as desertion had then much increased, and the home owners still twitted the Quebec builders with stealing their men, the builders and merchants, to ape the home authorities about shipping-offices, must needs have one too; so they got an Act passed, as it declared, to stop desertion. An incumbent was appointed, but unfortunately he paid no attention to the part about desertion; he shipped any one who came to him. You will probably say, why not confine him to his Act? This would not do for him: he was independent of all—he cared for no one. So, no desertion no fees; and no desertion no men for new ships.

The parties who advance money to the builders are equally interested in desertion, for when the ships were loaded they wanted them manned and away to be sold to get back their principal and interest. Therefore they have an interest in desertion. Many landlords are largely interested in it too, because many of them own houses which, as private houses, would not, perhaps, rent for £10, but for which the crimps pay £40 and £50. The police are interested in it: no desertion no police. Even the police judge is interested in fees for warrants, lawsuits, &c. Seven or eight thousand of the labouring classes are also vitally interested, because no desertion no work for them.

Thus you will perceive how the interest in desertion runs through all these ramifications, and the reason it is so much fostered, encouraged, and winked at by some parties who make so much noise about it. Why the consignees of British ships are interested in it, because they lend money to pay sailors' advances, and charge 9½ per cent. for the loan.

I despair of its being entirely put down, but the interest of the owners may be secured by the plan I have proposed—cheap men, by paying off the men, and having a number of shipping-offices. The more competition the better among Shipping-masters; it will insure moderate wages and attention.

Well, to encourage and promote desertion, and insure plenty of fees, what wages do you imagine this Shipping-master commenced with? Why the quite unusual ones of £12, when in old times they had generally been from £3 10s. to £5 and £6, except in the year previous to his appointment (1847), when so many seamen died of the

passenger fever. In that year they commenced at £3 10s, but finally ran up to £12. After that year he generally began his wages at £15 for the first ship in the spring, whether there were men in the port or not. This was thrown out as a bait to the men—a temptation to run which they could seldom resist. Then when he had stuck out his wages all the Jacks quickly heard it, and were ready to cut and run. The crimps, sailor-stealers, runners, &c., were then in ecstacies. They painted up their boats, filled their rum casks, and put their dens in order, ready for business. And then desertion runs through the whole season, because when a new ship has stolen say twenty or twenty-five men from old ships, others must be stolen in return to man them; and thus crimping flourished in his life-time, to the owners' loss and his gain. Always commencing in the spring with wages seldom under £15, sometimes he had them as high as £20; yet during the last four years, during the time of free trade, other persons have always shipped for American vessels at from sixteen to twenty dollars a month. When this Shipping-master was giving for British ships from sixty to eighty dollars a month, you must admit that something must have been wrong. The truth is—no desertion no salary, no fees, no pickings.

Last July twelvemonths the old gentleman died, when he had wages at £15, and crimping and desertion were in full blast. Then his son, who had been his deputy, continued at £15 for a time, and then he pushed them up a little higher, to the great joy of the crimps and sailors, but to the great injury of the shipping. One writer says that the shipping interest has annually suffered to the extent of £100,000 through the crimping system. To such an extent it is not true, but say only half, and for the nine years of its operation we have a dead loss of £450,000 to the British ship-owner; and this chiefly through the means of this officer giving such unnecessary wages to cause desertion and promote fees. He has always given more than double, and sometimes more than treble the wages of olden times.

The chief of police, however, called upon him to show his authority to act. All he could produce was his appointment by his father. The Judge decided very properly,—"That when the principal dies, the deputyship expires." Then what was to be done? Why it was found out that the imperial statute said that in colonies, if there was a shipping-office, Captains wanting men for British ships should go there (it is quite silent as to colonial vessels, and of course as to foreigners); but if no shipping-office, then men are to be shipped before some officer of Customs.

The head of the Customs in Quebec considered that this clause threw the Shipping-office upon his shoulders, and he forthwith assumed it. He then duly installed this young deputy, and the summer before last he continued his wages as he had commenced them, at £15 during the whole summer, until late in the fall, with abundance of men in the Port. He was frequently remonstrated with about his high wages, but he gave no satisfaction. One firm (Messrs. Gil-

mour and Co.) would not submit to such doings, but sent two of their masters to New York for forty men, whom they got at twenty dollars a month, equal to £4 sterling. Late in the fall men became so numerous that in an underhand way other persons supplied captains with men. In other instances, captains supplied themselves with them at from £5 to £7; and then, when the navigation closed, many were left behind, being unable to get shipped.

Last summer, after many complaints had been made, even by builders and others, and last spring to this office, it had the modesty to commence wages at £10, at which they continued all the summer. I have lived more than twenty years in Quebec, and have had occasion to look narrowly into this matter, and I never saw such an abundance of men, yet the office went on, jog-trot, at the same rate. They do not study supply and demand. Last fall many of the seamen had wisdom enough to perceive that they could not all get shipped, and many of them ran round the Port and offered themselves to captains at £2 per month under the office wages. Later still in the fall, other parties for new vessels reduced wages to £6. The office reluctantly did the same. After this the same persons still further reduced the wages for another new ship to £4. After this such was the abundance of men, that some shipped at 1s. a month to get away, and a mate actually shipped at £1; and to my knowledge many went away to the United States, and still many who had not the means to do so remained in the Port when I left late in November. Had the wages for new vessels been commenced moderately, there would have been less desertion, and still they could have been manned. The wages this summer the same as the last, and indeed for the last nine years need never have been more than £5 or £6, sometimes less, instead of from £15 to £20.

Another thing which has been a great source of complaint on the part of owners and masters is, that men are merely shipped in the office, viz., put on the ship's articles, the advance-notes drawn and given to the men to get the merchants acceptance. When masters call to inquire what progress has been made in shipping men for them, they are informed that their men are shipped and told the time to be on board; and if they do not come, that they (the captains) had better look after them. "Here is your bill, and when paid, you can have your Articles." Thus they pay for shipping their men, and oftentimes have much trouble to hunt them up, and at the same time there are in the office two river police as runners, paid as policemen out of the tonnage duty levied on shipping to support a river police. This is a clear misappropriation of the fund. Upon the complaints about crimps in the press, it was stated that river police kept runaway sailors, which had been publicly known for years, and that one of these police runners in the Shipping-Office keeps a large crimping-house, and did as much business in that line as any of them; and, being in the office, had a ready means of getting his men away, to the great jealousy and annoyance of the other crimps. Of course it was duly reported that this police runner kept a crimping-house, as

also that another of them did the same; the one was then dismissed from the Shipping-office, and the other out of the river police. Then much merit was claimed for finding out what all knew, and thus further complaint on this head was at an end, and dust was thrown in the eyes of the complainers.

As I am now speaking about the police crimps, I will, with your permission, try to show you why the police, under the present system and regulations, will never be of much use to prevent desertion; indeed they are only an expensive deception to the shipping, useful to put men on board who have been apprehended by captains, put in gaol until the sailing of the vessels to which they belong, and then, upon the ship's sailing, put on board by these police, who watch them until the anchor is up, when they assist.

These river police are embodied in the spring, and dismissed in the fall; many of them are married men and residents of the Port, and have uncles, aunts, cousins, sisters, and friends, who keep crimping-houses, groggeries, and such like places. Others are unmarried men, some residents of the place, some not; some sailors, some not. They enter the force only for pay for the summer; in the fall some of them go up the country; others, such as sailors, generally ship. These unmarried men are not at all restricted where they shall board and lodge; and many of them board in these crimping-houses, groggeries, and taverns, and of course carouse, drink, and fraternise with the inmates there.

Some captains, upon losing their men, make no complaints; do not wish to find them; indeed many are glad to get rid of some of them. And it is a fact well known that some masters have even gone so far as to sell to the crimps the privilege of stealing their men, and purposely gone out of the way to give them a chance to tamper with the men and get them away. It is equally true that other masters, when the men have a large sum due to them for wages, to harass and annoy them to get them to leave, presuming that by doing so they are doing good service to the owners, and saving their money. While other masters, who have some conscience, and have the owners' interest at heart, when they lose men, run puffing and blowing up to the police-court in the Upper Town, and there make complaint to the police-magistrate, and ask him to furnish them with warrants to search suspected houses and places. There are generally some of the crimps there, or their runners, or some of the fraternity, and before the ink is well dry on the warrant, it is telegraphed to the suspected places, and the men are quickly moved to unsuspected places, perhaps some ten or fifteen miles into the country if it is judged that the captains will persevere in their searches. These crimps always keep pretty good friends with the police, both river and land; (the land police will not meddle with seamen, even should they see them day or night running from ships with their dunnage;) should, indeed, either of these police forces find out at the station that there are warrants lodged against any particular house or friends, it is made known in such a way that the parties will hear of it, and then, if time permits, the men are sent

away as quietly as possible. The searches are generally made early in the morning, and at times Jack may be caught napping; at other times the beds may be found warm, but the birds are flown.

To make police somewhat more beneficial, if beneficial at all, as far as possible, strangers to the city and to the people, unmarried men, should be preferred, and they should be put into a large house or barracks as soldiers are. This would make them independent of the inhabitants, and under no undue influence through them; and any one of them found drinking, carousing, &c., in crimping-houses, dram-shops, and grog-shops, should be instantly dismissed.

Formerly these river police were in the habit of taking gratuities, &c., from masters and others for apprehending and putting men in gaol, putting them on board, getting up anchors, &c. Last summer the chief strictly forbid their taking any presents, which has much soured their minds. As these pickings during the summer amounted to something handsome in the fall for each man, so now, having nothing but their pay to depend on, they have no inducement beyond it to be active, and they become indifferent and lethargic in their duties.

Some of the writers ask for more law about crimps, &c. Why, sir, one imperial statute, as well as the colonial law, is strong enough to punish the actual crimp if applied in the right quarter, which it has rarely been. The authorities have seldom gone to the fountain-head, viz., the man who actually keeps the crimping-house, and who employs whom he calls runners, and buys the stolen men from them. Perhaps you are not aware that the real crimp, the man who keeps the house, seldom boards vessels to steal men; he hires some wide-awake desperado, who has probably made himself conspicuous in the Southern States for using pistols, bowie-knives, slung shots, and has become celebrated for boarding ships and stealing sailors, and too many times anything else withing his grasp. The crimp furnishes this genius with a boat, and then supplies him with free bed, board, rum, and necessaries, and besides pays him from one to two dollars for each man he steals and brings to him. Several of these gentry have this summer been caught, fined, and confined; while at the same time the real crimps, the housekeeper, the fountain-head, and where many stolen men have been found, have been left unscathed; I presume because they happen to live in the city, and have votes at the election.

Generally the runners do not board there. If the authorities, of which I have some doubt, are determined to give a fair trial, and try to stop desertion, why not go to the fountain-head at once,—the real crimp, the keeper of the house, and punish him when men are found in his house. Singularly enough, the authorities have hitherto always commenced at the wrong end; they have only lopped the branches, instead of striking at the root of the evil; they have punished the stranger and generally left the resident of the city unpunished.

The year after the shipping-office came into operation (1849) so satisfied were the builders, merchants, and others, who were the mainspring of getting it up, that it was a serious injury, not only to the

British shipping coming to the port, but actually to the new ships, in consequence of its giving such unreasonable wages, as also that the port was too large for only one office, that they, as well as the Board of Trade, the merchants, the inhabitants, pilots, who had oftentimes been shamefully detained days and sometimes weeks for men, to their serious injury,—all these persons petitioned the Ministry here either to destroy the child of their own creation—the shipping-office, or else to alter it, and let the Governor for the time being appoint three or more Shipping-masters, but without any salary; judging rightly that this competition would create attention, civility, dispatch, and low wages.

A bill to amend the Act, and to allow the Governor to appoint three or more was introduced; a committee of the House sat on the matter, and that committee reported for total repeal. The bill reached its third reading, and was then lost by a majority of one.

The next year complaints became louder and louder, and the bill was introduced; another committee sat on it, and again they reported for total repeal. Another bill was introduced on the recommendation of the committee, which finally shared the fate of its predecessor. A third bill was introduced on the recommendation of the Quebec Board of Trade, to allow the Governor to name three or more Shipping-masters; the Ministry favoured the introduction of this bill, which probably would have been passed had there not been a split between the upper and lower members on other matters: so that this bill, among many others, still lies over. The Board of Trade wished to have the appointment of three or more Shipping-masters in their hands. The Ministry refused this; as having got this little patronage into their hands, they seemed inclined to keep it; but why not extend their patronage to three instead of one, I am at a loss to understand.

That the Act will be altered I am certain,—common sense and common prudence add justice to the home shipping demand that there must be either no office or there must be three or more. In the United States any man who asks for an appointment can be a Shipping-master; such business is open to any one the same as any other office; this creates emulation and competition. At all times wages are according to the supply of men in any port. Why, sir, to limit this business to any one man, is preposterous: it is creating a regular monopoly. You might as well limit the business of lawyers, doctors, and even tradesmen, in any city or town to a certain number, and thus place the pockets of the many at the mercy of the few. This would destroy emulous competition. The Ministry have very properly promised that something shall be done at the next sitting of the House; and, as an earnest of their good intentions, upon the death of the late incumbent they did not appoint another, and I hope they never will.

Living in the port for a great number of years, being connected with the shipping business, and, I flatter myself, understanding the ins and out of the matter on which I write, and being fully sensible of the great injustice done to the old shipping by the thing mis-

named a shipping-office, the losses sustained in wages by its means, the ill-feeling it has created in the place, the favouritism to favoured crimps, and the harshness shown to others by the office,—I addressed the British Board of Trade, the Naval Department, the Ministry, and others on the subject: many others did the same. Some of these parties made me this reply:—"If we pay off men in the American colonies we shall lose them, they will go to the United States as run-away men." I grant they will, for this simple reason, that many of them cannot with any degree of comfort perform the contract which they have entered into, as explained before. They will run away, and if they have the spirit and the means, opportunities they have plenty. They will not remain in the port to be apprehended, incarcerated in gaol until the ship sails, perhaps taken home in irons, and on arrival receive no pay because they had deserted; or even should they run clear of their late Masters in the colonies, they are afraid to venture home in another ship, as they may be caught and mulcted of all they have earned in such ship, and perhaps in addition get three months in gaol at the treadmill. No, rather than run all these chances, the young, the spirited, and the enterprising and unmarried men will, as they have done for some years, fly to the country where none of these things are practised upon them.

Although the American laws are quite as severe as the British, yet upon ordinary occasions they have too much good sense and shrewdness to enforce them, as they find that this, what Jack calls *freedom*, brings many of the best of seamen from the old country to them, and this answers their purpose well, because they have but few native seamen. If you wish to get British seamen back to their country, their homes, and their families and friends, pay them off in these colonies, and then they will neither be ashamed nor afraid to come home again. They will receive what they have earned, and spend it as they see fit, and I am sure be ready to rally round the old flag, should Britain require their services. Freedom would bring them back—harsh and unfeeling laws have and will continue to drive them away.

Others, again, have met us with this reply:—"Yes, if we pay men off in the colonies the sailors' wives and children will become a burthen on the parishes." Here is another mistake. Perhaps you will be astonished when I tell you that monthly money for the families is unknown in the United States. There, a seaman who has any regard for his wife and family, when he deems it proper, goes and ships, draws his advance, which is always liberal, and gives as much as he can spare to his family. If he does not make the voyage complete, why he makes another, and brings home the balance of his wages and his second advance. I have been through a number of their ports, and never heard any complaint that sailors' wives and families were more upon parishes than any other class. As to the monthly money which the British allude to, why it is well known that for ships coming to the colonies, the first month may be paid, but generally the owners at home take very good care to stop payment of the se-

cond—anticipating that the married men will run away; thus placing the wives and families in a worse condition than they would have been had they known that they had only the advance to depend on.

Another reply was that the colonial new ships robbed the old ships of their men. The two last seasons have shown the utter falsity of these assertions; because, during both these periods, there have been more men than both new and old required, and many, to get employment, had to fly up the country to the United States and the Lakes; and the wages could and should, with proper care and management, have been very reasonable and moderate.

You will probably say—How is this? I will explain it, and at the same time will admit that at the first blush there appears not to be much truth in the assertion; but I think I can explain this to you as I have done to others to their satisfaction, and made converts of them. Neither is there any necessity, as some have insisted, for new ships to import any men; the old ones bring plenty, and they do not rob them, as many have said.

It is an admitted fact by all Masters coming to the American ports that during the boisterous months of spring, ships coming to the British North American colonies require more men coming out than they require to go home, and yet go home efficiently manned; the same remark applies to the whole summer until the fall. Now it is fully within my knowledge that Masters losing men generally go two or three short of the outward complement. Thus a Master loses say twelve men, he ships probably nine; another fifteen, he ships probably twelve or thireen; another loses five, he perhaps ships three, and some go even shorter handed than this, on account of the generally high and shameful wages.

Now nearly all vessels lose more or less of their crews. Suppose, which is under the mark, that Quebec has only a thousand vessels coming during the season, and that upon an average each vessel drops only one man; here we have a thousand men for the new ships, and all the old ships are manned. In addition to this we have a number of seamen employed during the summer as riggers, and who live in the port, many of whom go home in the fall; as well as pilots, apprentices, landsmen, and, lastly, annually a number of seamen who come from the Lakes and States to go home for a trip, as well as annually several who come from the United States, tempted by high wages to take a trip to Europe. These would probably swell the number to 300 more, which would make, at the lowest calculation, 1,300, which is far more than all the new ships require.

I hope I have now proved to your satisfaction that the complaint of the new ships robbing the old ones is a fallacy (the untruth of such assertion the two last summers have abundantly proved), and that the old vessels and the sources I have named furnish more than an abundant supply of seamen for both new and old vessels. I hope that I have also conclusively shown you why I have long since come to the conclusion that the interests of England would be best answered in the British North American colonies in particular by pay-

ing off her men there; and that, as freemen, they would neither desert their flag, their homes, nor their families. They would return to their native land, which many of them never will as long as the present system prevails in these colonies. And that, to insure at all times plenty of men for all shipping, new as well as old, at fair, moderate, and reasonable wages, competition should be created. A number of Shipping-masters, say four or five, should be appointed without any fixed salary; then each would depend on his civility, quickness, attention, and low wages for patronage. This would work a cure, and I am sure would satisfy all parties, and answer the best interests of all. In the United States this plan has long been tried, and attended with complete success. In such case a river police would be unnecessary: each vessel, as most of them do now, would employ a watchman, who would of course protect the ship's property at but little more cost than the police, and effectually protect it too. The watchmen cannot stop desertion, and indeed they never attempt to do so; they are all residents of the place, and have friends in it.

Should the British Government not be inclined to pay men off in the American colonies, then the next, and in my opinion the only plan to insure low wages—and what so many owners, builders, masters, merchants, and others have so often petitioned the legislature here for—is to again ask the Ministry to repeal the present Shipping Act, which allows the Governor for the time being to appoint one Shipping-master; pass another Act, and invest him with power to appoint four or five. This competition, should it not stop or check desertion, would at all events insure low and moderate wages, which all interested in shipping so much desire—the high, enormous, and unnecessary wages have been the chief cause of complaint—and thus partially cure the evil. Your imperial statute does not assume any control over colonial vessels while in their own colony, but out of them it does; and it gives colonies power to adopt further vessels, so much of it as they see necessary. And when so adopted, and Shipping-masters appointed, all ships, British as well as colonial, come properly under the Shipping-master's control.

I am, &c.,

ALPHA.

To the Editor of the Shipping and Mercantile Gazette.

[The *Shipping Gazette*, from a recent number of which we have quoted the foregoing letter, now says that "The Quebec crimps are already preparing for their campaign, and the best way to defeat their manœuvres is to anticipate them." The great importance of the subject has induced us to reprint the whole letter.—ED.]

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from p. 29.)

The Molucca Channels.

By the term Molucca Channels are included those seas which lie between the Eastern Coast of Asia and that of New Holland, with the Java and Soloo Seas.

Monsoons in the Molucca Channels.—In these seas two monsoons are distinguished, which seamen call the North West and the South East monsoons; some saying that the winds hang more to Northward than Westward, and more to the Southward than Eastward. The first corresponds to the N.E. monsoon North of the equator, the second to the S.W. monsoon. It is known indeed, that the monsoons which prevail in these channels, are much less regular than in the open seas, and that according to the time of year, the North and West winds prevail in turn, as well as those from South and East during the other monsoon. It may be noticed generally in these seas that South of the equator, as far as 10° or 12° South latitude, the direction of the wind varies 10 or 12 points from that of the prevailing wind North of the equator at the same time; that is, if a ship North of the equator have the wind from North, another ship south of it will have it from W.N.W., and if the first ship have the wind South the latter will have it from E.S.E. or East. But to avoid confusion arising from this the different names of the monsoons, the old names of the N.W. and S.E. will be here preserved, according to the case in question.

In the Java Sea, like that of the Moluccas, the N.W. monsoon commences in the first part of November; and does not attain its height till December. It continues till the end of March, a time when the weather is varied by calms, light winds, squalls, rain, &c.

The S.E. monsoon commences in April, and gradually increases till May: it ends in October, when the winds become variable.

Such is the general law observed in these two seas, but what has been said on the variation of the wind must be remembered: it sometimes draws to the Northward or Westward and sometimes Southward or Eastward. Besides this, the changes of the monsoons, do not take

* In reference to the hurricanes of these Eastern Seas we prefer to refer the seaman to those treatises by which he will obtain a correct knowledge of the subject rather than introduce any condensed account of them here. Such a mode would be but unsatisfactory, for although the great principles of the hurricane are few and easily understood they must be studied well to be turned to account and their peculiarities allowed for. The following treatises on the subject contain all that the seaman requires.

The Sailor's Hand-Book for the Law of Storms Being a practical exposition of the Theory of the Law of Storms and its uses to Mariners of all classes. By Henry Piddington. Smith and Elder, 65, Cornhill, London.

The Storm Compass or Seaman's Hurricane Companion, by Comdr. A. B. Becher, R.N. Potter, 31, Poultry, London.

place at regular periods. The S.E. monsoon is subject to calms, and the wind of it is not so strong as during that from N.W.

Strait of Bally.—In the Strait of Bally the wind often blows from North with much violence: in the Strait of Sapy alternate land and sea breezes are found. They blow from the South in the morning and from North at about two hours after noon. They are frequently separated by an interval of calm. In the other Straits East of Java, a similar condition of the wind is found, and that is also very variable.

North Coast of Java.—On the North Coast of Java, from May to July, the wind is from S.E., with a return of opposite winds varying to N.E. Near the West point of the island during the S.E. monsoon, which brings the fine season, it is from S.S.E. varying to E.S.E. In October these winds become weaker and variable.

The N.W. monsoon generally begins in October, sometimes nearly a month before or after, and ends in March, being the season of the great rains. In December westerly winds prevail. Towards the middle of February there are storms and rain.

Batavia.—At Batavia from April to November the weather is tolerably fine; rains then set in for the rest of the year.

Borneo, South Coast.—On the South coast of the island of Borneo, that is from the Pulo-Laut to the Strait of Sunda, the S,E. monsoon prevails from May to September, as it does on the West of Java. At this period, in the Indian Ocean, the S.W. monsoon prevails North of the line. From September to April the West wind blows on this coast, bringing constant rain and dirty weather. During the S.E. monsoon, the weather which is still wet, is less rainy than during the N.W. monsoon. But it may be broadly stated that in Borneo it rains eleven months of the year.

Straits of Carimba, Gaspard, and Banca.—In the Straits of Carimba, Gaspard, and Banca, when the N.E. monsoon prevails North of the equator, N.W. winds are mostly found.

North of Bourou and Ceram, the S.E. monsoon varies from S.S.E. to S.S.W.; at Amboyna from East to S.E. In these islands the N.W. monsoon varies from W.S.W. to N.W. This last, often called the Westerly monsoon, is the season of storms in these islands, ending in April. The other monsoon (the S.E.) begins in March and lasts till November; bringing the rainy season. In the Moluccas during this monsoon violent storms are met with; and rain falls, especially over the larger island of the Archipelago. In November this monsoon ceases. However, the Northerly or N.W. monsoon does not become established for some time after, for during two months, the winds are variable as they always are in close seas, towards the end of the monsoons. From October to April the weather is tolerably fine.

In the Moluccas, situated between 5° South and 1° North lat. the winds are very irregular, as there is a great difference between the monsoons which prevail at the same periods in the two hemispheres.

West Coast of New Guinea.—On the West coast of New Guinea are two monsoons; one from S.E. lasting from April to October; the other from N.W. beginning with the end of October and termi-

nating towards April. In January, near this island the wind sometimes varies from N.N.W. to N.E. In the spring the weather is often changeable, and in March, April and May there are storms and squalls. From June to September a great deal of rain falls; from October to May the weather is fine and calm, without either clouds or fogs.

Island of Celebes.—The island of Celebes, like that of Borneo, is divided by the equator into two parts, and the same phenomena are found here as described in referring to the monsoons at Borneo and Sumatra. On its South coast the S.E. monsoon is established from May to October, and the S.W. monsoon prevails at the same time on that part of the island which is North of the equator. The S.E. monsoon lasting from May to October, on the coast of Celebes South of the equator, brings the dryest season. The N.W. monsoon replaces the S.E. towards October, and lasts till April; rain is then almost perpetual, and the wind strong.

During the two months when the sun is nearly over the island, and near the syzygies, we have always Northerly winds and rain.

On that part of the island north of the equator, the N.E. monsoon in October takes the place of the S.W.; this is the fine season.

Strait of Macassar.—In the Northern part of the Strait of Macassar, from May to October, the S.E. monsoon is found as on the East coast of Borneo. The same also takes place between Celebes and Gilolo; it is succeeded by the N.W. monsoon, lasting from November to April.

In the Southern part of the Strait the wind is from the N.E. in April, May and June, and there is less of it in August and September. During October, November and December, as well as in the following months, in these latitudes fresh breezes prevail from W.S.W. to W.N.W.

Near the West coast of Celebes, from May to October, land and sea breezes are found, while on the coast opposite of Borneo the wind is steady from South.

From November to April, on the West coast of Celebes, the wind varies from W.S.W. to W.N.W.; in April, May and June it is from N.E., but light in the month of August.

It has been observed that when the S.W. wind prevails on the coast of Celebes, about six leagues off the coast it becomes W.N.W., and N.W. on the coast of Borneo. During the S.E. monsoon (from May to October) a vessel cannot work up against it on the low coast of Borneo, on which coast light land winds are found in this season, while on the corresponding coast of Celebes, which is elevated, a fresh land wind blows at night followed by a sea breeze during the day. In December we generally meet the alternate winds near Celebes. In August and September the wind is light; but sometimes off this coast storms from S.W. occur and long calms.

Seas of Celebes and Sooloo.—In Celebes Sea and the Sooloo Archipelago Easterly winds with fine weather prevail in October, but are not regularly established till November. In May the Westerly winds replace them, and in a month become established to terminate in October; bringing with them a season made up of rain, squalls, and tempests,

which take place principally in July and August. In September a heavy mist hangs about the coasts of Mindanao.

At the beginning of the Westerly monsoon the winds are light for some time, with heavy rain, during which the wind blows from an opposite direction, lasting from the Eastward sometimes for above a week. Heavy storms occasionally happen until the Westerly wind becomes established. During the whole of this monsoon the weather is cloudy, rainy, and sometimes stormy. In the same season, between Mindanao and Celebes, sudden and violent storms take place from N.W., the Westerly winds sometimes lasting till November.

In the Sooloo Sea the East or N.E. monsoon is not a steady fresh breeze but often variable. Near Mindanao the Northerly winds never blow fresh, and light changeable winds often displace them for several days. The same occurs at the end of January, and it is considered that the same winds prevail from the Sooloo Archipelago to Manila.

Sea of Timor.—In the Timor Sea, and also in the Arrufura Sea between the Arroo isles and the North coast of Australia, as well as in the vicinity of Torres Strait, the S.E. monsoon blows with much regularity. Towards the middle of it, from May to August, it varies from E.S.E. to S.E. and is then very strong. The Malays call this the white season. In the beginning and towards the end of the monsoon the wind is due East and sometimes veering to E.N.E. During this monsoon the wind is generally fresh and steady when the moon quarters, and we find calms and unsettled weather at the time of the syzygies. This fact has also been observed in the trade wind of the Eastern coast of Australia.

Torres Strait.—In Torres Strait Easterly winds prevail. The Westerly monsoon does not blow there steadily; it is frequently modified by the Easterly wind, which is then light and variable, and lasts several days, until it strengthens to a fresh breeze.

On that portion of the sea, between Papua, or New Guinea, and Australia, during the month of January and at the beginning of the Westerly monsoon the winds are generally from N.E. to North, drawing occasionally to the Westward.

Near the N.E. coast of Australia, as far as the parallel of 14° S. latitude winds varying from N.E. to W.N.W. prevail, and further South they veer to East and E.S.E.

Between these two monsoons there are frequently calms of long duration, and the time of the change from the S.E. to the N.W. monsoon is the period when these long calms mostly prevail. When the monsoon is about to be established Westerly winds blow for five or six days, then they cease, and are sometimes succeeded by light variable winds for a lunation. Then at the following syzygy the monsoon becomes established, with obscure rainy weather and sometimes squalls, for two or three days. The weather then clears up and a moderate breeze sets in for some time, producing clearer and finer weather than is experienced during the S.E. monsoon.

Two or three days of bad weather may be expected at the period of the syzygies, although sometimes five or six weeks of continuous fine

weather may have prevailed. Near the land the weather is always more boisterous and rainy than at a certain distance out to sea; yet about the limit of the monsoon, in 15° S. latitude, rainy and squally weather is generally met with. The mean direction of the wind is nearly W.N.W., veering to N.W. and S.W. at the time of the syzygies, and sometimes at those periods even to W.S.W.

(To be continued.)

THE STEAM-SHIP "TYNE."—*How she was got off Shore.*

Sir,—Having seen several conflicting accounts as to the floating of the above ship, I beg to hand you a short narrative of the facts as they occurred. Having received instructions from the managing directors of the Royal Mail Steam-Packet Company to get the *Tyne* off the strand, I made a visit to the ship on the 6th February, and on the 11th went on board with about 50 men, and found the ship lying full of water, with her stern-post, rudder, and keel gone (12 feet up the stern-post to 27 feet in length forward), leaving an uninterrupted ingress and egress for the tide. By the night of the 12th I had constructed a clay bulk-head, stopped the leaks, and got the ship partly pumped out. On the 13th I had a steam pump fixed, and got all the water out, but found the rise and fall of tide not sufficient to float the ship with her engines in her. On the 17th began getting her engines out, and laid out anchors fore and aft ready to heave her off. On the 24th she floated, and we hove her astern in her dock, but had not water enough to get her out of it. 25th, a heavy ground swell set in and drove her shoreward about 70 feet, and three feet higher up the ledge. All the anchors coming home, and having no means to hold her off, I let the water in and sunk her, to keep her quiet. March 3—Again pumped the water out of the ship to get out the remainder of the engines, and broke up her boilers, as it was impossible, with the ship lying on her beam-ends, to hoist them out entire. 7th—Laid out one of Lieut. Rodgers' 40 cwt. anchors, with 350 fathoms of $1\frac{3}{4}$ chain in a S.E. direction outside the ledge, in 7 fathoms water, ready to heave her off. Thursday, 12th—At 7 a.m., got the last piece of engine out of the ship, hove the chain tort, with a purchase on it, the *Friend of All Nations* (tug of 120 horse power) towing on the port bow. At 7.45 she began to jump, and at 8 o'clock we hove her off clear of the rocks, slipped all our anchors immediately, and towed away for the Needles. At 10 o'clock passed Hurst Castle, and at 3 o'clock p.m. got into the dock at Southampton, all rafe; ship making very little water. I desire through the medium of your journal, to return my bess thanks to Messrs. Bennett, Curlewis, Peacock, Gribble, Lapsley, Glass, Bell, Harris, and all the officers and men employed, for their able and energetic support in carrying out the work under the many difficulties and dangers to which we were exposed, and to congratulate them and the directors of the Royal Mail Company on the successful termination of our labours.

I am, &c.,

Lloyds, March 16, 1857. J. RUSSELL.

Sir,—The *Tyne* was taken off the strand at St. Alban's Head on Thursday morning last, under the superintendence of Captain Russell, of Lloyd's, and Mr. W. G. Bennett, one of the managers of Messrs. John Pile and Co.'s shipbuilding establishment, West Hartlepool, who were induced to lend that gentleman's valuable services in recovering the vessel, they having been eminently successful in floating vessels on other occasions. The *Tyne* is built of iron, and about 3,000 tons, and cost the Royal West India Mail Company about £100,000. The Company's manager and 300 men were for 14 days endeavouring to remove her, but to no purpose. After they had given it up and left her, Messrs. Russell and Bennett took her in hand, and will no doubt be handsomely remunerated for their services so ably rendered.

I am, &c.,

City, March 16, 1857. A CONSTANT READER.

Shipping Gazette.

NAUTICAL NOTICES.

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from p. 162.)

Name.	Position.	Where.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
9. Winter Harb Maine, U.S.		Mark Island, Frenchman Bay	F.	42	11	Est. 1st Jan., '57. Tower circular. White.
Kennebunk Pier, Maine, U.S.			F.	25	8	Est 1st Jan, '57. Tower square. White. Three feet lowest water on bar.
10. Humboldt Bay	40° 46·1′ N., 124° 12 3′ W.	California B. on North sands	F.	56	12	Est. 20th Dec., '56. Tower white. Mag. Var. 17·1° E.
11. Wusung Beacon	31° 14′ N., 121° 42·2′ E.	Yang-tse R., S. shore entrance		70		Painted red and white. Var. 0·5° W. 1856.
12. C. Cabellerlu	40° 5·7′ N., 4° 9·4′ E.	Minorca, N. cape	F.	308	20	Est. 1st March, '57.
13. Catalina Harbour	48° 30·7′ N., 53° 6′ W.	Green Islnd., Newfndlnd	F.	86	15	Est 1st June, '57. Visible when bearing from W.S.W. round northerly to N.E. Var., 1856, 31·7° W. A lower light there at present.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established. m Mean level of the sea.

ELLICE BANK, *in the South Atlantic.*

The following account of a bank in the South Atlantic appears in the *Shipping Gazette* of the 17th March.

The *Russell Ellice*, Moore, from Swansea, at the Falkland Islands, reports having found soundings in 45 fathoms water on a supposed bank situated lat. 30° 50′ S., long. 35° 50′ W. by chronometer, 36° W. by lunar observation. Captain Moore's attention was first attracted by the change in the appearance of the water, but the state of

the weather prevented his getting soundings until they were nearly off the bank, and the heavy sea running prevented him from lowering a boat and sounding around it carefully, as he was disposed to do.

The foregoing account derives considerable interest from the circumstance that the reported bank is not more than about fifteen leagues from the spot where several unsuccessful attempts to find the bottom were made with 150 fathoms, in a westerly and S.W. direction from it; and seems to have been the bank sought for by the *Herald*, without success, on her way out to the Pacific. From all appearances, as well as the foregoing one of the *Russell Ellice*, there is sufficient authority to set aside all doubts of its existence.

But, in reference to shoal as well as deep water sounding, the whole locality has claim to attention should we ever follow the noble example set us in this respect by the United States' Government. Thus there is not only this bank to trace out there, but there is the refuted deep sounding of Captain Denham only 15 leagues in a S.W. direction from it, shown by Lieut. Maury in our volume for 1853 (p. 394) to be about 4,000, instead of 7,700 fathoms. It is to be regretted that such information as this, so thoroughly deprived as it is of its *authenticity*, should thus stand in the charts to mislead those who believe in it, and to be slighted by those who do not. Among the former we find the author of a sweet little work entitled the *Marvels of Science*, and dedicated to the King of Prussia, has sullied his much admired pages with this unworthy addition to them. But perhaps he looked no further than the charts for his authority on the subject, and they would no less mislead him on that than on the first discoveries of Columbus in America.

Reported Bank, *North Atlantic.*

We give a reluctant consent to place the following in our pages—satisfied that no such thing as a visible bank exists as reported.

Friday, June 27th, 1856, at 4h. 40m. a.m., on a passage from Bahia towards Bremen, in the barque *Port Wallace*, J. W. Smith, Master, I observed on the port bow, about two cables' length, the water of a light whitish colour, and quite smooth. I told the man at the helm to keep off one point, the wind being N.W., but light, with passing squalls When abreast, about forty fathoms off, I could distinctly see it was a rock, about six to eight feet under water: in length about one hundred feet, and in breadth seventy feet. All the watch saw it, and immediately afterwards one of the men said there was another on the said bow; which I saw myself, and also the watch, distinctly. It appeared to have more water over it than the former, being of a darker colour. In circumference it was about five fathoms, extending about one cable and a half S.E. and N.W. The ship was going three knots at the time. Latitude and longitude, referred from noon and at night, 49° 36′ 36″ N., 16° 17′ 15″ W.

I have only to observe that this danger does exist very near the position mentioned, and it is not laid down in my chart. I made the

Scilly Islands four days afterwards, rated my chronometers, and found the longitude mentioned correct.

J. W. SMITH.

SHIPWRECKS.

The following is an extract from the annual report of the National Lifeboat Institution.

From the elaborate and interesting Return of the Wrecks and Casualties which occurred on and near the coasts of the United Kingdom during the past year, presented by the Board of Trade to Parliament, it appears that the total number of wrecks in that period was 1,153. About one half of that number took place, as usual, on the East coast, thus showing, in the most striking manner, the great want of available harbours of refuge on that part of the coast.

The loss of lives from shipwreck during the past year was 521. Although this number is considerably less than has occurred in previous years, with the exception of the year 1855, when the number was 469, it is yet lamentably large; and the committee feel persuaded that, in future years, if the present vigorous exertions that are now being made are sustained and increased, this loss of life on our coasts will be still further considerably reduced.

"The sacrifice of human life and the loss of property which are crowded into this sad record are not, perhaps, understood by the casual reader, but are keenly realized in many a home throughout these islands, and in many a house of business. The foundering of the vessel amidst the wild tumult of the elements—the wreck beaten into staves on a lee shore—the terrible collision on the watery highway, when one or, perhaps, both vessels sink with their living freight and costly cargo, perhaps to rise no more—such incidents as these are recorded, it may be, in a line or two, yet what a volume of loss and of anguish are embraced in the few words in which each tale is told."

It is, however, gratifying to find that the number of lives saved from shipwreck during the past year has been unprecedently large, as the following list shows:—

By lifeboat	362
By luggers, coast-guard-boats, and small craft	1,184
By assistance from shore with ropes, mortar-apparatus, &c.	407
By ships and steam vessels	262
By individual exertion of a meritorious character	28
Total	2,243

In the year 1855, the lives of no less than 1,388 were rescued by the same means from shipwreck on the coasts and in the seas of the British Isles; but last year, as already stated, that number was increased to 2,243, a most satisfactory result, and affording a striking proof of what may be accomplished in this work of humanity by co-operation, by exertion, and by the skilful and courageous use of all the means that are available for the preservation of life from shipwreck.

The total number of persons saved from shipwreck since the first

establishment of this Institution, for rescuing whom the committee have granted honorary and pecuniary rewards, is shown in the following list:—

1824	124	1833	449	1841	128	1849	209
1825	218	1834	214	1842	276	1850	470
1826	175	1835	364	1843	236	1851	230
1827	163	1836	225	1844	193	1852	773
1828	301	1837	272	1845	235	1853	678
1829	463	1838	456	1846	134	1854	355
1830	372	1839	279	1847	157	1855	406
1831	287	1840	353	1848	123	1856	473
1832	310						
						Total.....	10,101

Who can contemplate this large number of lives saved from a watery grave without heartfelt satisfaction! And to those who have directly, by their individual exertions, or to others who have indirectly, by their subscriptions, contributed to that happy result, that satisfaction must be greatly enhanced.

Illness of Dr. Kane.—By recent telegraphic accounts from Havannah we regret to hear of the apparently hopeless state of Dr. Kane, and probably long ere this he will have passed away from us, leaving a name however which will last throughout all ages: an honour to his country and to mankind.

There is little doubt that the severe hardships Dr. Kane encountered on his last voyage to the Arctic Seas, in search of Sir John Franklin, laid the foundation of his illness, but his constitution had undergone many severe trials, on other occasions and in other parts.

Dr. Kane's visit to England at the close of last year was of short duration. He found that his health was too much broken in upon to enable him to receive those attentions which all would have been ready to proffer; and after a short stay he proceeded by the packet to St. Thomas's and thence to Cuba.

Dr. Kane's account of De Haven's voyage in 1851 in search of Sir John Franklin; and the narrative of his own recent voyage, are volumes of deep interest: his descriptions are vivid, his observations deep, his sentiments noble: and a childlike simplicity pervades the whole of his writings.

His discoveries up Smith Sound, at the head of Baffins Bay,—which he pushed far beyond all previous navigators, and revealed an open polar sea,—will hand his name down to latest posterity.

As one of the great connecting links which bind the hearts of England and America, the name of Dr. Kane will be honoured and associated with that of Grinnell, Peabody, De Haven, and Hartstein; and it will be for ever cherished in England, as that of the gallant young Frenchman—Bellot—both having sacrificed their lives in a sacred cause—the cause of Franklin and his brave companions.

The following extract of a letter from Mr. Grinnell to Mr. Barrow has subsequently been received.

"24th February, 1857.—I have a telegraphic despatch from New Orleans, dated yesterday, as follows:—'The *Cahawba* has just ar-

rived, reporting the death of Dr. Kane, on the 16th Jan. The greatest sympathy was shown him by the Officials of the island, who attended his funeral in a body.' Thus has terminated the life of one of the most remarkable men that this country ever produced. His death will excite more interest throughout the whole country than that of any other person."

New and Corrected Charts, &c.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

	Price	s.	d.
West Coast of Scotland, Raasay Sound, Capt. Otter, R.N., 1851	-	3	0
,, Ru Ruig to Gruinard Bay ,,	-	3	0
,, Loch Inver to Loch Aroom ,,	-	3	0
,, Loch Broom ,,	-	3	0
North America, Gulf of St. Lawrence, 1857 - - -	-	3	0
East Indies, Red Sea, Capt. Elwan, I.N., 1834 - - -	-	3	0
China, from Gulf of Pechili to Pekin - - - -		1	0
,, Appendix, No, 16, to China Pilot, Yang-tse-Kiang River, Lieut. Preble, F.S.N. - - - - - - -		0	3
Pacific Ocean, sheets 1, 5, 9 - - - each 2s. and		2	6
New Zealand, Auckland Harbour, Capt. Stokes and Comdr. Drury, R.N., 1855 - - - - - - -		3	0
,, Current Basin and French Pass, Capt. Stokes, R.N.	-	1	6

Hydrographic Office, Admiralty, March 23rd, 1857.

Certificates Cancelled or Suspended.

Where.	*Name.*	*Ship.*	*When.*	*What for.*
Ayr.	N. M'Neil, *M.*	*Louisiana* ...	19 Dec. ..	Neglect of lead, C
Southampt.	— Valler, *M.*	*Tyne*	2 Feb....	Neglectof lead, S. 12 months.
Liverpool .	W.Pickard *M.*	*Telegraph* ...	20 Feb....	False entry, C.
Liverpool .	J. Duncan, *m.*	*Fortune*.....	18 Feb....	M., C.
Galatz ..	Lee Grace, *m.*	*Partisan*....	4 Feb....	D., C.
Liverpool .	R.Penticost *M*	*AnnArmstrng*	18 Feb....	D., S. 1 month.
Liverpool .	W. Allen, *m.*	*Liberia*	23 Feb....	D., S. 6 months.
Constantpl.	W. Mormann *m*	*Commodore* .	6 Feb....	D., S. 6 months.
Constantpl.	R. Driver. *M.*	*Inkerman* ...	..	D., C.
Neath	R. Rutter. *M.*	*Mary Sophia.*	14 Feb....	Negligence, C.
Neath	W. Robson *m.*	Ditto.	14 Feb....	Ditto, C. occasioning loss of vessel.
Liverpool .	W. Morton *M.*	*Liberia*.....	28 Feb....	D., S. 6 months.
Newcastle.	A. Watson *M.*	*Jackal*.....	9 Jan. ...	M. ship lost 6 months
Benin Riv.	W.Berwick *M*	*Cherokee*....	13 Jan. ...	D. and brutal conduct C.
Constantpl.	H. Craver, *m.*	*Susan*.....	28 Feb....	D. and M., C.

M. master, *m.* mate, I. intemperance, D. drunkenness, F. false statements, S. suspended, M. misconduct, C. cancelled.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MAY, 1857.

The "Tay"—The "Tyne"—and The "Madrid."

When the Admiralty placed the charts constructed in the Hydrographic establishment of their office at the service of the public, one would have thought that at least they would be used with the same discretion as by their own officers. This journal has frequently borne testimony to the good effects of the measure. Again and again have we had occasion to record the excellent use made of them by many of our mercantile commanders, who have repeatedly placed in our hands *their* contributions towards their improvement; and, at the same time, adding their admiration of them. Not but that we know well the full value of the motto with which we originally set out in this journal,—those words of the late experienced Hydrographer, Admiral Sir Francis Beaufort,—that "there are no charts of any part of the world so accurate, and no directions so perfect, as not to furnish frequent occasion for revision and amendment," and we have taken occasion frequently to cite those words as cautions against that misplaced confidence which is one of the mischievous offsprings of *Steam!*

Still the system of thus diffusing the charts used by the ships of the State generally throughout our mercantile marine, has been most beneficial. If indeed it had done nothing more it has done good by enabling commanders of ships, at least those who choose to use them, to obtain them from their own agent, instead of obliging them to

trust to whatever kind of information they can obtain from a party who is not responsible to any one whether it is good or bad. But it is remarkable that instead of receiving the boon which few other Governments in the world offer to their seamen and prizing it as it deserves, no sooner do we hear of the loss of a vessel by the want of discreet and proper care in her navigation, than the whole blame is thrown on the Admiralty charts. Such is the encouragement in return from *some* for a considerate act on the part of the Government. Far and wide it is reported that the vessel has been lost, and all owing to the incorrectness of the Admiralty charts. A recent case or two of this kind has occurred which we propose to look into. But it may be well to inquire first as to the constitution of these Admiralty charts: how they are put together: before we turn to those who set the example of decrying them.

Perfection it is very well known belongs not to mortal man; and of all his productions probably the chart has some right to be considered the most imperfect of them. And why? because it professes to be a miniature representation of a portion of a bed of the sea absolutely examined without being visible! Hence, while a survey is going forward from which a chart is to be constructed, dangers are not discovered. But they are afterwards suddenly found, occasioning surprise and doubt as to the accuracy of the chart. However, the situation of these dangers being ascertained, they are marked in their proper places upon it. How often this occurs: but how can it be otherwise? Were the plain surface of the water, as it is shown on a chart or a plan, a mere piece of glass or the water itself a transparent medium through which we could look as we pleased at the bottom, what a number of secrets we should find out in the ways of nature,—what a number of little hills and dales with occasional rugged precipitous rocks,—some thrusting their summits well above the ground, and others just high enough to be concealed by the water when at its lowest level would appear, to become new dangers as they are successively discovered. In fact, could we command the sea to retire for a short time while we took a glance at what it would reveal, how interesting a spectacle would it present! a rugged plain interspersed with hill and dale and some rocky pyramids thrusting their summits above the weedy labyrinth in which they are lying, like the giants of the forest above the minor masses;—all now concealed and wearing a placid covering by that treacherous element the sea, which forms a wonderfully soft bed for ships of wood and iron to rest on.

Now it is nothing more nor less than this that the nautical surveyor has to deal with. Beneath this placid level plain surface of water he has to find out what he can of all this—and all he possibly can do is to feel what he cannot see!—to show as nearly as he can, and as closely as he can, by means of his sounding line, what nature has been about there; and having done so, a ship makes use of the result of his labours in the shape of a chart. True, that which is above water on the shore is added, but this is secondary. No fault is found with things that *are* seen,—it is the unseen things that when found

by some possibly fatal accident become the bugbears on which the discontented set up their ungrateful cry, and find all the fault they possibly can with the chart or its author or its publisher, or perhaps with all three of them.

These then are the materials of which charts are constructed, and when in the wide ocean the difference of level of the sea occasioned by winds and currents reveals some sunken danger till then unknown, it need be no matter for surprise; such things are highly probable, for although we have no means of measuring the ebb and flow and rise and fall of the sea in the wide ocean, except by such dangers, we do know that rapid currents flow past islands, and must therefore do the same where there is no such friendly mark to afford the comparison.

But returning to the surveyor,—if we were to enumerate the parts of the world where he has been at work in his useful vocation at the command of our own Government, it would be too tedious to dwell on. Those parts comprise a large portion of the seashore of the whole world, and his works have been justly acknowledged as the pioneering process of civilization and trade. His productions are essential to navigation; they are indispensible to the seaman, and an invaluable boon to geography as well as navigation.

Other Governments to a certain extent have been doing the same. Besides the unequalled survey of their own shores by the French under the masterly superintendance of the late Admiral Beautemps Beaupré, the French Government, by their several scientific expeditions, have largely contributed to the same; and that of the United States is following up the process of delineating their own shores, besides investigating the depth of seas in a systematic persevering manner, such as might be expected from a liberal government, which knows well the advantages of encouraging maritime enterprise in every possible shape.

From such materials as may be gathered from the foregoing sources the Admiralty charts have long been constructed for the ships of the State, which charts have also been placed at the command of all navigators. They are formed from the surveys, where they have been made, either by our own or by the officers of foreign governments generally. And where surveys have not been made, recourse can only be had to any little accidental collections of private individuals, such as they may be; and where such are not to be had, we must fall back on the ancients, and grumble as we may about it must be satisfied, and wait for better times. And there are yet many places too where this spare hydrographic diet must be endured, especially if we turn for what we have among the mazes of the Molucca Archipelago or the coasts of Tartary, Corea, Japan, and such places, where navigation as yet has made but feeble strides.

Nevertheless, in a part of the world which has recently been the scene of disaster and wreck, we shall be found to have been for the last half century comparatively well off, notwithstanding the outcry that has been made about it. But from the foregoing it may be in-

ferred that the charts supplied by the Admiralty to the ships of the State are constructed from the best materials that can be obtained, whether from our own or foreign contributors, and like all others must be expected to fall under the sentence we have quoted as Sir Francis Beaufort's.

Since the month of August last, three vessels, named above, of our principal steam packet companies have been run on shore, two of which were totally lost, and the other recovered after a fearful amount of expense. And all three cases have been marked by a deficiency of common precaution that could not have been expected in any ordinary seaman. In the case of the *Tay*, related in our last volume, it was evident that her loss was the effect of a routine of duty peculiar to herself, and was nothing more, as we observed at the time, than might have been expected. Poor compensation this for the sufferings of the passengers, exposed as they were to the miseries of Lobos,—tormented by vermin and landcrabs at night and the burning sun by day.

The next case, that of the *Tyne*, on the coast of Dorset, was equally remarkable for the absence of common precaution. A misplaced confidence in the position and course of the vessel blinded her proceedings, while no allowance for any contingent circumstances, such as a lee tide on her bow hustling her inshore, seemed to have been thought of. The Portland Lights were recognized and concluded to be a certain distance off, but had even a couple of bearings been taken of these at some short interval between, and her course and distance run between those bearings referred to the chart, without opening any book whatever, the proximity of the shore would have been discovered, and the secret of the real situation of that vessel would have been revealed in time to have averted *her* calamity.

Certainly, in neither of the foregoing cases were the charts questioned. The causes of those loses were too evident. The Spanish chart of Cape Roxo and Lobos had not put the *Tay* on shore; nor had our capital chart of the coast of Dorset anything to do with the uneasy bed the *Tyne* found for herself under the cliffs near St. Albans Head. The former might have been justly open to criticism, for although copied from the Spanish into the Admiralty charts, we never heard of anything like a trigonometrical survey of that distant coast: but the accuracy of that of St. Albans Head will defy criticism.

Now then let us turn to the *Madrid*, and here we shall find outcry enough;—the whole blame in fact of the loss of this vessel has been unmercifully thrust upon the Admiralty charts. Indeed, by the reported proceedings of an inquiry into her loss, so completely was the blame *said* to be due to the Admiralty (!) by one person, that "he thought the Government ought to pay for the loss of the ship!" But that opinion seeemed peculiar to himself, although there was no dissenting voice at that inquiry, according to the report, from throwing blame on the Government! There is something so extraordinary in these proceedings, such an exhibition of fine feeling in regard to Admiralty charts, to say nothing of hydrographic knowledge, that for

the sake of such inquiries for the future the result of this must be rectified, lest the assertion that has been made respecting the Admiralty chart should pass for true.

Was there any one on that inquiry acquainted with Tofiño's charts? Was it known there that they were used by the ships of the Navy during the old war,—that Vigo was published in 1802 by the geographer of the day, and that his Spanish Pilot was published by him in 1812, as well as another edition of it printed in 1814 by the Hydrographical Office? Tofiño ranked high as a surveyor in those stirring days, not so remarkable for good charts as these. The work of the Spanish surveyor corresponded with the period; there was no time lost over it, and the discovery of a danger that has been added to it since (viz., that of the Castros, on which H.M.S. *America* grounded in 1847) has proved that he had no time to spare for probing out dangers with the lead in the manner to which we have above alluded. And although a survey of some of the same coast as Tofiño went over has since been made by the Spanish Captain Florez by order of his Government, and published in 1835, and another survey of Vigo was also published by that Government in 1850,* these have but slightly altered Tofiño's work, and nothing in respect of the distance at which Point Hombre should be passed; but the latter seems not to have reached the Admiralty Office until December 1852. Now Tofiño's little plan of Vigo, done in 1787, in his Spanish Pilot, has been used by her Majesty's ships ever since the early days of its publication by Faden. It is on a reduced scale certainly, but sufficient with care for navigating that open bay; hence the republication of the more recent plan, received in 1852, gave place to others of a far more pressing character in the Hydrographic Office. Thus we find the Black Sea and Baltic charts for the then approaching war adding heavily to the weight of other matters there, besides those for every part of the world in which surveys were progressing in charge of our officers, in addition to current matters of North Sea, Channel, Nova Scotia, Australia, New Zealand, Chinese and Japanese hydrography, all with pressing claims on attention to the wants of our ships of far more importance than Vigo, for the navigation of which there was ample provision made when used with good discretion. Such, however, was the state of the case in reference to the charts of Vigo at the time of the accident to the *Madrid*, the plan in Tofiño's Pilot, old though it was, and the chart already mentioned of Florez, the former accompanied by directions, were in use in her Majesty's ships.

The result of the inquiry instituted by the Board of Trade into the circumstances of that vessel grounding off Point Hombre, on the 20th of February last, appears in a report by the Justices of the Peace at Southampton, a copy of which is professed to be given in

* These are:—Carta Esferica de la Costa de Galicia desde el rio Miño hasta Cabo Toriñana, levantada por el Capitan de Fragata de la Real Armada Dn Ignacio Fernandez Florez, &c. Madrid, 1835.

Plano de la Ria de Vigo levantado de orden superior por el Capitan de Fragata de la Armada Real Dn Antonio Doral, &c. Madrid, 1850.

the *Shipping Gazette* of the 30th of March last, and from which the following is an extract.

"The *Madrid* was an iron steam-ship of 315 tons register belonging to the Peninsular and Oriental Company. She left Southampton on the 17th of February and proceeded on a voyage to Vigo," &c. * * "She made Point Hombre at the entrance of the inlet of Vigo at 2.15 p.m. on the 20th of February, and being about 150 yards from the mainland, the vessel struck upon a sunken and invisible rock, not laid down on the Admiralty chart. The weather was fine at the time, the sea perfectly calm, and the vessel going full speed, or about ten knots."

The consequence was, as is well known, the vessel "sank the same night." The report continues, that the captain "had been in the constant habit of passing over the same ground, not being aware of any danger, a minimum depth of nine fathoms being marked on the Admiralty chart, *and no rock or shoal being indicated thereon off Cape Hombre.* It appears also that the numerous captains of ships who were examined before us have invariably passed equally close to the same headland, relying upon the correctness of the Admiralty charts." Hence the loss of the *Madrid* could not be attributed to her captain; "but at the same time (continues the report) we must express our opinion that as a general rule 150 yards is not a sufficiently wide berth to allow on passing any headlands."

Such was the opinion expressed in court by these gentlemen, who, it may be presumed being landsmen, have not the nerve for grazing points that the commanders of steamers accustomed to do so would appear to possess; and it will be no bad thing if the latter take the hint thus offered. But the Southampton gentlemen having given this excellent advice, then go on to pronounce *their* opinion on the Admiralty charts thus, in terms which there is no mistaking.

"We cannot conclude our report without calling the attention of your lordships to the incorrectness of the chart published by the Admiralty, *in which the rocks whereon which* (sic) *the Madrid struck are omitted*, and to the fact that the same rocks are laid down in the accompanying Spanish chart of the inlet of Vigo published in 1787, and republished by the Admiralty in 1812, which chart the Company's Nautical Inspector, Mr. Guthrie, *has not been able to obtain from the authorized agents of the Admiralty, though he has applied for it within a week.*"

We will venture to add, not since these wholesome inquires into the causes of wreck have been established, suggested long ago in this journal, has a more unfortunate report, or one more inconsistent with fact, been promulgated. The passages to which we particularly allude are in Italics, for the sake of easier reference. The Admiralty charts concerning Vigo are before us, namely, the little plan of 1787, not only republished in 1812, but being perpetually republished to this day,—and also the chart of Florez alluded to already as published in 1846, and perpetually republishing also. There can be no difficulty in obtaining these charts,—they are to be purchased from

the Admiralty agent, Mr. Potter, at 31, Poultry, and from his sub-agents, a list of whom reappears every month in this periodical, and by the published catalogue it appears that the latter chart is to be had for the sum of two shillings, and the former plan for the mere cost of sixpence. We are particular in stating this as fact, convinced that there must be some misconception producing an erroneous conclusion on the subject. The two documents we repeat are accessible to every one, and are in the Catalogue of those charts and plans placed by the Admiralty (as we have already observed) at the service of the country; and had they been followed (old as one of them certainly is) the *Madrid* would have been yet a sound vessel. We are at a loss to understand on what ground a difficulty of obtaining a chart could have been asserted in the report. Were either of these charts used at the inquiry or on board the *Madrid?* It would seem that only one of them, the chart or the plan, was used at the former; but whether they were or not they should have both been not only there but on board the *Madrid* also. But this perhaps we shall see presently.

Something worse however than this remains behind. Not to be able to obtain a chart wanted for the navigation of a vessel is bad enough. But how much worse when that chart is obtained that it is to be the means of losing the vessel using it; a chart, according to the report, "in which the rocks whereon the *Madrid* struck are omitted." Better indeed, if such were the case, that the chart *had been left* in the hands of the publisher. And is this really so? Let us look into these two documents—the chart of Florez and the plan of Tofiño. Now the former *is nothing but a coasting chart.* It is one with which her Majesty's ships *can* go into Vigo, but the plan would rather be used for that purpose. The former, the chart of Florez, necessarily compresses a mile of space into something less than half an inch, because the sheet contains a line of coast amounting to seventy miles of direct distance, and deeply indented too it all is, (one of which indentations is Vigo,) although it is precisely on the same scale as the Spanish chart, and large enough *for a chart.* Now, if it were attempted to lay down the rock, on which the *Madrid* struck, at 150 yards from the coast, it *could not be done* on this chart! Even the figure 9, expressing 9 fathoms close to Cape Hombre, occupies a space of about 150 fathoms, and that is twice the distance the *Madrid* was from the point. But such inshore minuteness is not looked for by a seaman in a *coasting chart,* and those who use charts with any discretion take good care not to try them beyond their pretensions.

Now let us turn to the plan. True this is small too, for the mile is contained in five eighths of an inch—or at least something over the half inch. But here even, on this little plan, the rocks on which the *Madrid* evidently struck, are plain enough. The danger line outside of them stands at 266 yards from Point Hombre; so that the report on the loss of that vessel might well say that "150 yards is not a sufficiently wide berth" on rounding headlands,—for even the careful old surveyor Tofiño, knowing the tendency of seamen to take liberties

with headlands, and which he knew also they could not do with impunity at Point Hombre, warns them off by a danger line outside of rocks which he shows to be lying off that point. How then, we will ask any seaman, with this plan before him, is any ship justified in going within this line? Even in his directions he warns the seaman not to approach Point Hombre "within a cable's length at least,"—meaning thereby (as he has drawn the line in his plan) at a cable and more from it.

But there are portions of the evidence given on this inquiry, as reported in a local paper, from which we are induced to believe that the rock on which the *Madrid* struck is even within 150 yards of "the shore, near as that is. Thus we read in the captain's statement, at a distance of about *half a cable's length from the point* the ship struck on a sunken and invisible rock," care being taken to add, "not laid down in the Admiralty chart in my possession." This reduces the distance from 150 to 100 yards. And the officer of the watch at the time the *Madrid* struck, states in his evidence that "they were about two ships' length from the mainland at the time she struck," thus corroborating that opinion. Indeed, knowing as we do how estimated distances are overrated on these occasions, it is more than probable that the rock was even within this distance.

But the liberty that was taken with the shore by the poor *Madrid* in rounding Point Hombre astonished even the naval officer in charge of the mails. This gentleman seems quite aghast at it. We can imagine him, accustomed to that steady routine of proceedings on going into harbour in well regulated ships, standing amazed at the temerity of the captain when giving directions to starboard the helm off Point Hombre, by which she would be thrown even further inshore on the point.—"Surely the land must be as bold as brass to warrant you passing so closely," observes this officer to the captain. The term, bold as brass, was altered afterwards to "as bold as possible;" but either expression serves to convey the astonishment of the officer, who said, "if he had been commanding he should not have gone so close." But a degree of confidence is the result of steam power that leads to deeds of daring when there is no necessity for them. In cases of saving from wreck, where life is at stake, whether it be from the fury of the elements or in the face of an enemy, such deeds are to be admired. The risk is exciting, the object a worthy one, it may be unsuccessful, and he who plans and executes it has adopted the only chance of success. He is not blamed if he fails, and if he succeeds his reward awaits him. But in cases where no such risk is needed at all, prudence and judgment should teach the proper use of this confidence.

Such then appear to be the facts of the case concerning the loss of the *Madrid*. Instead of no rock or shoal being laid down on the Admiralty chart off Cape Hombre, as stated in the report, we have seen that the plan of 1787 republished, and used to the present day, does show the very rocks on which the *Madrid* was lost; *and the danger line is drawn outside of them at more than twice the distance that she was from the shore.* It does not appear that "they

are omitted," as the report states, and we cannot help thinking there must have been some sad deficiency of information at the inquiry that could have led to such an erroneous conclusion.

And what, we may ask, has the opinion been founded on that is expressed in the report of the incorrectness of the Admiralty charts, and yet that "150 yards" is not a sufficient distance at which to pass Cape Hombre? "From the depositions annexed to it," this appears to have been given by no less than eight *experienced* commanders, all professing to know Vigo full well, one of whom said that it was a point against which a vessel might "*rub her sides*," and yet not one of these commanders was aware of the rock off that point on which the *Madrid* struck!! Of what value can the opinions of such persons be on which to found a charge of inaccuracy in the chart, which charge has been proved *wrong* by the fatal experience of the *Madrid*.

One of them speaks with confidence of the inaccuracy of Tofiño's works as if he knew more than the surveyor! Doubtless the risks of the war affected Tofiño's work of the Azores, but there is no such inaccuracy in that of the coast of Point Hombre, as proved by the *Madrid!* They have served navigators well and would have served the *Madrid* as well had she followed their injunctions. Indeed, it is nothing but *opinion* that we find guiding the report of this inquiry. There is not a single reference to the plan or to the instructions for entering Vigo given in his pilot.

What then becomes of the senseless outcry against the Admiralty charts? the silly assertion that Government, in consequence of their incorrectness, should pay for the loss of the *Madrid!!!* And why? Because they fall into hands of some persons who first misuse them and then abuse them! We can see no other reason.

Our remarks on the subject had proceeded thus far when we learn that *Tofiño's plan was not on board of the Madrid at the time of her running on Point Hombre.* And we are informed that the plan of 1787, because it is old, would not have been considered fit for supplying to that vessel had the publication of it *been known.* Hence, what has long been published is not known! because perhaps it is not sought for. But had this plan been known it would have been refused, because it is old! Then, in the absence of all others, a plan of a place because it is old is to be set aside! Our chart of Scilly dates from 1792. We have plans of ports in Jamaica of the same date, none of them touched since; and of many a place abroad we can boast of nothing more recent. Are these to be set aside because they are old when there is nothing to replace them? Let us suppose that one of her Majesty's ships is going to Fernando Noronha. All that she would have for her guidance is a plan bearing the venerable date of 1735! 52 years older than Tofiño's plan of Vigo. Is this to be left behind because it is 120 years old when there is no other for her guidance? We apprehend such reasoning would avail little in the event of the loss of that ship. Tofiño's plan

of Vigo, old as it is, proved good enough for her Majesty's ships, and it does not follow that immediately a new foreign plan of a harbour is received it should be republished by the Admiralty. These matters are always judged by their comparative importance, and published in point of time according to that scale: and Vigo was provided for.

In fact *the plan that was to be had* was good enough, as it has long proved to be in the hands of *careful* navigators. Had the new one been on board the *Madrid* it could not have shown more clearly, than the old one did, that rock which was the occasion of her loss. And the report, instead of saying that the rock on which the *Madrid* struck was "not in the Admiralty chart," should have stated that the rock appears to be laid down in the plan of Vigo of Tofiño's pilot, which plan continues in publication and is sold by the Admiralty agent, but with which the *Madrid* did not take care to supply herself.

We turn from the subject with astonishment and regret. For it seems scarcely credible that a master mariner in charge of a large and valuable steam-ship, should go to sea without a plan of a port which he is destined to enter, that he might have had for sixpence,—that in fine calm weather, *with only a coasting chart on board*, he should have had the temerity to pass a point of land (and at the rate of ten knots per hour) *! about!* a hundred yards from it; and it seems still more incredible and certainly much to be regretted that a body of men, conversant with maritime affairs, with all the facts of the case before them, could possibly have given their verdict that the loss of *his ship* was occasioned by an Admiralty chart!

[It is a curious circumstance in the history of the *Tay*, mentioned above, that she was saved by one commander, who lost his command after getting her into and out of an awkward position, to be lost by his successor, who got her into an awkward position without getting her out of it.]

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria.*

(Continued from page 172.)

Neither of these rivers, the Mac Leay, the Clarence, or the Manning, are noted on the charts. Into Broad Sound it is said that the great Burdekin River flows; and if time and circumstances had permitted I would have examined this latter when passing through the Northumberland Isles.

Off the North Barnard Isles the wind failed us, and we anchored under the lee of the outer one. The whole island is micaceous, containing quantities of lead ore and veins of quartz, and the beach a mass

of dead corralines in all shapes and forms. We saw no natives to interrupt us in our run on shore.

During a calm here we had a visit from a native in a bark canoe, paddled with two pieces of stave about a foot long; he had nothing whatever in his canoe, but he wished us very much to anchor near his beach. He was very friendly, and made his canoe fast alongside at once with a piece of spun yarn, and did not leave us until a sudden and fresh breeze sprung up from the Northward, which, however, soon again died away. We gave the poor fellow some biscuit and fishhooks, and parted on good terms with him. The only words of English he made use of, and pretty frequently too, were—"Go away, fellow;" but I do not think he knew the meaning of them.

The day turned out most unusually rainy and gloomy, a dismal contrast to the fine clear weather we had been enjoying. The wind was both variable in direction as well as force, sometimes from North fresh, then off the land with rain, while albicore and bonettas were jumping around us in numbers.

The sea in the afternoon was covered with medusæ and what sailors call "sea-sawdust" in streams and bands lying N.W. and S.E., of which specimens were preserved.

The night continued dark with rain, the wind light and very variable, as we heard the reef plainly breaking outside of us, and the ship was gradually drifting towards it. So that we were obliged to anchor at 11h. p.m. in 17 fathoms, and found the current setting North about one mile per hour.

The Frankland Isles were passed the next day, woody, rocky, islets, having sand spits, like all the islands within the reefs, on their North extreme, covered with dead coral, and affording anchorage during the S.E. trades.

Fitzroy Island was passed soon afterwards, a larger island than either of the former, about four or five miles in circumference, densely wooded, and nearly 900 feet in elevation. The anchorage here appears secure, formed as it is by a deep crescent-shaped sand and dead coral beach, facing N.W. This island appears to be of granite formation, and is attractive from having fresh water on it. On a sandy beach on the mainland abreast of this island many natives were seen jumping about. The low green bushy island on the inner edge of the Barrier Reef was plainly seen about four or five miles distant to the Northward.

Continuing our course, in the evening we passed close to the position assigned to the Satellite Rock; but could not discern any inclination to break. A rock in that position, which would stop a vessel of the *Satellite's* draught of water, should have shown itself in the sea that was then running. A patch of discoloured water in its vicinity, perhaps was veiling a danger, or perhaps only discoloured by washings from the reefs close by.

Capt. Stokes says, in vol. i. p. 342 of his *Discoveries in Australia*, that he searched for a shoal in lat. 16° 24¼′ S., Low Islands N.N.W. four miles, on which H.M.S. *Imogene* struck. This must be the same

I was for an hour so anxiously looking for, or from being called Satellite Rock on the *Fly's* chart, have two vessels run into the same danger?

We passed on the West side of the Low Islands, (Trinity Bay,) off which a coral reef extends a good half mile, and which at night would be dangerous to vessels passing, particularly as it is the lee side and does not break. From this island we stood North for the night, (allowing for indraught and leeway,) thirty-three miles, no danger being visible, and anxious to take every advantage of the strong S.E. wind blowing. At 11.15 p.m. anchored for the night, as we were nearing the dangers off Hope Isles. The weather was also thick and rainy, and in the morning it was desirable to have a look to the doubtful existence of a shoal in Weary Bay. The next morning we could see nothing of the shoal on which a merchant ship struck, and we therefore resumed our course.

On passing Rocky Island, in lat. 15° 36½′ S., the ship passed between two patches of discoloured water, which looked very suspicious indeed, and had it not been blowing a gale, we might have examined them,—especially as two others appear in the chart to the N.E.

Passing Endeavour River in the forenoon, and knowing from experience the difficulties of the navigation, those which our great circumnavigator experienced were brought forcibly before us. It was here he had brought his ship in a sinking state to repair after "grinding" on the reefs for twenty-three hours; and here he effected his object sufficiently to proceed with her to Batavia. Others have followed his example, and shipwrecked crews have fled here for refuge. We therefore fired a gun on passing, and showed our colours to attract the attention of any unfortunate persons who might be there; but not even a native appeared. Soon after passing it we found ourselves in discoloured water, with the pyramidical mount of 1,500 feet, near the river's entrance, named Mount Cook, (worthy monument of the man if it be the only one,) bearing N.W.b.N. (mag.) five or six miles distant; and Turtle Reef due East; the ship passed through a patch of discoloured water, the heavy sea that was running almost breaking on it, and this prevented a cast of the lead being taken. It was a relief to find the vessel was again in blue water.

After leaving Cape Bedford we steered a course for Three Islands, arranging it so that the course would take us directly over the Victor Shoal. On passing this spot there was a heavy sea running, caused by the opening in the reefs to the S.E.; but notwithstanding an anxious look out for it, no sign whatever appeared of a shoal, and had there been one it must certainly have shown itself. Capt. Stokes and other surveying officers have examined this supposed danger with a similar result.

We passed within two cables' length of Three Isles, and on leaving Cape Flattery I kept close to the danger marked doubtful in lat. 14° 49′ 30″ S., and long. 145° 22′ 40″ E., with no more satisfactory results than those of the Victor Shoal; then we stood for Lizard Island to the N.E., when a sudden gale from the S.E. compelled us to let go an anchor, in 8 fathoms mud, and make everything snug for

the night, which promised to be most boisterous. During the day we made upwards of one hundred miles, which was more than an average of nine knots an hour.

Reflecting on the trials and vicissitudes which Capt. Cook endured in the course of his voyages, particularly near the Endeavour River, which we had so recently passed, I could not but feel an inward satisfaction that it has been my good fortune to have been connected with vessels which have followed that inimitable explorer in all his voyages; tracing him in the Arctic Regions, in the Antartic Seas, in the Pacific and Atlantic Oceans, round Australia, and through the Polynesian Isles, and finally to the rock in Karakoa Bay (Sandwich Isles) where he met his untimely end. Often have I marvelled at what he effected with the small means at his command:—a quadrant, a pocket-watch, and a dull unseaworthy vessel! That all his work should approach so near the truth, does infinite credit to his name. He is long since gone from us and, alas, forgotten!!! How prone we are too soon to forget the dead! The living are "all in all," the dead unnoticed! We see no monument to remind us of so wonderful a man as Cook (except perhaps one in some secluded place in England). Nature has supplied many, in mountains and rivers, islands and capes, to which his name has been gladly affixed; but where is there an artificial one? the work of man's hand! Not in Australia!

It blew very hard during the night; but the vessel rode it out easily. The sea had risen so much that while at anchor, although head to wind, and current in the same direction, several seas topped over the after part of the paddle-boxes to the quarter-deck, washing all before them.

From our anchorage we steered the next morning for the narrow entrance between the reefs, which is barely one and a half miles wide, with a strong favourable current. Here Noble Island affords a good entrance mark.

A little before noon we suddenly found but a few feet water under the port paddle-box,—a supposed porpoise turned out to be a rock! not a boat's length off the ship; the vessel touched the ground, going nine knots, but happily without injury; and thus passed one of our most narrow escapes.

Rounding Cape Melville, the foot of a ragged mass of loose granite blocks, we hauled up West for Flinders Group. It was near Cape Melville that the natives on two occasions behaved so treacherously to visitors, and attacked the boat's crew of the *Bramble* while watering. This must warn future voyagers, should they have occasion to call near this dreary and inhospitable spot.

After passing Cape Melville we steered for Castle Hill of Flinders Group; and here large native fires were observed on the elevated hills South of that group, made to attract our attention, and allure us into their treacherous nets. We passed close (within half a mile) of North Flinders Point. In two or three of the sandy inlets two canoes (hollowed from a tree), having outriggers, were seen hauled

up on the beach; and here and there a group of three or four natives, men, women, and children, were *planted;* but evidently timid; for on our rounding each point so closely as we did, our appearance was rather sudden among them, and they darted away behind a tree, where they remained until we had passed. Possibly they have some recollections of their former treacherous proceeding thirteen years before.

The next day, Heaths Rocks awash, were passed close, and most ugly dangers they are, not breaking in smooth water at half tide; but a brown discoloured water points out their vicinity. The indraught from the ocean swell through the openings in the reefs, induced us to pass on the lee side of them. The openings here alluded to are the second and third three mile openings and some smaller ones.

Taking a correct departure from No. 7 sand islet, (swarming with pelicans and other birds of various species, and having a pole of drift wood, about twenty feet high erected on it,) we steered a direct course N.N.W. for the South end of Night Island, which would carry us (as there was sufficient daylight) over Chilcotts Rock awash, the position of which is noted doubtful on the charts. It will be seen that a line drawn from No. 7 sand to the South extreme of Night Island passes over the eastern edge of the rocks; but no sign of the rocks could be seen. The chart informs us they are rocks awash, possibly at low water; and as the sea was smooth and the tide three quarters flood, they may exist.

These doubtful positions of dangers have one good effect, they keep Captains and masters on the alert, and perhaps if we had a few more dotted about the charts we should have more vigilance and less loss of life and property. We anchored for the night about eight miles North of Night Island, with three dangers before us, waiting for daylight before we can attempt to pass them.

Next day we passed the Sheward Isles, small insignificant sand islets, with a few bushes on them, and from these stood for Cape Weymouth.

Cape Direction was passed at 9h. a.m. It was here, and not at Cape Melville, that Bailey, one of the *Fly's* men, lost his life by a spear from a native. When the spear was withdrawn the barb remained in the wound, which in a few days caused his death. Here several large snakes were seen during the day lively enough on the surface of the water, and diving at once on seeing the vessel, not giving us time to observe their species.

Restoration Island, the first land seen by Bligh after his unparalleled voyage in the *Bounty's* launch, 1780, was now before us. As the *Torch* passed it we could not but gaze on it with feelings of sympathy, connected as it is with a sailor's sufferings and misfortunes. It was on this spot, nearly seventy-six years since, that this officer first saw land after a voyage in the *Bounty's* launch, which stands unrivalled in the history of navigation.

It was called Restoration Island by him from having seen it on the

anniversary of King Charles's restoration to the throne. We gazed at every rock and bush as we glided swiftly by, as they reminded us of the perils and vicissitudes which he had endured.

Middle Reef, in Weymouth Bay, is a long dangerous reef nearly two miles in length, and having only one mangrove tree on its South sandy point; a smaller shrub is, however, growing near it. From this we had a long run for the Piper Isles of nearly twenty miles, with a strong favourable current.

The weather had now changed to thick and dirty, with occasional showers. We had passed the break in the reef where Bligh entered in the *Bounty's* launch, which is also near where Capt. Cook entered a few years previously. At 4h. p.m. we entered the narrow channel of the Piper Isles, and steered direct for Young Island, to note if it had advanced since Capt. King's visit in 1820, when he describes it as "A small rocky shoal on which were two small trees. This particular is recorded as it may be interesting at some future time to watch the progress of this islet, which is now in an infant state; it was named on this occasion Young Island." Its appearance in 1839 (nineteen years afterwards) is described in Stoke's Voyage of the *Beagle* as "An elevated reef, with *one* small mangrove growing on the highest part." On the 15th of July, 1856, (thirty-six years afterwards,) we had a fair inspection of this same islet, passing less than a quarter of a mile from it. It is young still, but boasts of no green leaf or blade of grass of any description. Nothing remains but a small sandy patch, with dead coral, surrounded by a fringe reef about a mile across, having two large stones a little more elevated than the sand on the North side. Not even a bird was seen on it. Therefore this island, in a period of thirty-six years, had not progressed in elevation or verdure; but, on the contrary, retrograded.

Forbes Island, which we passed, is noted for being a depôt for all sorts of stores collected from wrecks about the Barrier Reefs, deposited there by persons who make a living by them.

On taking bearings for our anchorage, they placed us exactly on a spot where the top of the thumb may have been placed without touching a sounding, and in which space we found 15, 14, 15, and 14 fathoms, and then let go the anchor for the night, which was thick, misty, and squally. Here we found a weather set of the current caused by being deflected by the land about the Home Islands, part of the body of the water rushing to the Northward and a lesser part to the Southward. The vessel was a little uneasy at her anchor, caused by the above circumstance; but it moderated towards midnight.

At daylight we continued our voyage, with the pleasing prospect of a fine day before us to conclude our Inner Route navigation after the thick and rainy weather we have had. A fresh wind from S.E. was grateful, as it assisted us in weathering Sir E. Home's Isles, and we then bore away under all sail for the Bird Isles, two groups of small sandy isles, covered with trees, having a deep passage between them. We soon passed the remains of the wreck of the *Sir A. Camp-*

bell, on the North extreme of Cockburn Reef. How this ship could have been lost there it is difficult to imagine. She might as well have been lost on the Sow and Pigs, in Sydney Harbour! reefs equally well-known!

At noon to day we had an increase of the thermometer in the sun's rays, which showed 105°, exceeding by 10° what we had before experienced.

(To be continued.)

THE POPULATION OF CHINA,—*A Letter addressed to the Registrar-General, London. By Sir John Bowring.*

(Concluded from page 180).

While so many elements of vitality are in a state of activity for the reproduction and sustenance of the human race, there is probably no part of the world in which the harvests of mortality are more sweeping and destructive than in China, producing voids which require no ordinary appliances to fill up. Multitudes perish absolutely from want of the means of existence—inundations destroy towns and villages and all their inhabitants; it would not be easy to calculate the loss of life by the typhoons or hurricanes which visit the coasts of China, in which boats and junks are sometimes sacrificed by hundreds and by thousands. The late civil wars in China must have led to the loss of millions of lives The sacrifices of human beings by executions alone are frightful. At the moment in which I write, it is believed that from 400 to 500 victims fall daily by the hands of the headsman in the province of Kwang-tung alone. Reverence for life there is none, as life exists in superfluous abundance. A dead body is an object of so little concern, that it is sometimes not thought worth while to remove it from the spot where it putrefies on the surface of the earth. Often have I seen a corpse under the table of gamblers—often have I trod over a putrid body at the threshhold of a door. In many parts of China there are towers of brick or stone where toothless—principally female—children are thrown by their parents into a hole made in the side of the wall. There are various opinions as to the extent of infanticide in China, but that it is a common practice in many provinces admits of no doubt. One of the most eloquent Chinese writers against infanticide, Kwei Chung Fu, professes to have been specially inspired by "the God of literature" to call upon the Chinese people to refrain from the inhuman practice, and declares that "the God" had filled his house with honours, and given him literary descendants, as the recompense for his exertions. Yet his denunciations scarcely go further than to pronounce it wicked in those to destroy their female children who have the means of bringing them up; and some of his arguments are strange enough: "To destroy daughters," he says,

"is to make war upon heaven's harmony" (in the equal numbers of the sexes): "the more daughters you drown, the more daughters you will have; and never was it known that the drowning of daughters led to the birth of sons." He recommends abandoning children to their fate "on the wayside" as preferable to drowning them, and then says "there are instances of children so exposed having been nursed and reared by tigers." "Where should we have been," he asks, "if our grandmothers and mothers had been drowned in their infancy?" And he quotes two instances of the punishment of mothers who had destroyed their infants, one of whom had a blood-red serpent fastened to her thigh, and the other her four extremities turned into cow's feet.* Father Ripa mentions, that of abandoned children, the Jesuits baptized in Peking alone not less than three thousand yearly. I have seen ponds which are the habitual receptacle of female infants, whose bodies lie floating about on their surface.

It is by no means unusual to carry persons in a state of exhaustion a little distance from the cities, to give them a pot of rice, and to leave them to perish of starvation when the little store is exhausted. Life and death in China, beyond any other region, seem in a state of perpetual activity. The habits of the people—their traditions—the teachings of the sages—all give a wonderful impulse to the procreative affections. A childless person is deemed an unhappy, not to say a degraded, man. The Chinese moralists set it down as a law, that if a

* Doubt has been sometimes expressed as to the practice of infanticide in China on any great scale; but abundance of evidence of the extent of the usage may be found in Chinese books. The following is a translation of a Decree of the Emperor Kanghi, entitled,—

Edict prohibiting the drowning of children.—When a mother mercilessly plunges beneath the water the tender offspring to which she has given birth, can it be said that it owes its life to her who thus takes away what it has just begun to enjoy? The poverty of the parents is the cause of this wrong-doing; they have difficulty in earning subsistence for themselves, still less can they pay nurses and undertake all the necessary expenses for their children; thus driven to despair, and unwilling to cause the death of two persons to preserve the life of one, it comes to pass that a mother to save her husband's life consents to destroy her children. Their natural tenderness suffers; but they at length determine to take this part, thinking themselves at liberty to dispose of the life of their children, in order to prolong their own. If they exposed these children in some unfrequented spot, their cries would move the hearts of the parents: what then do they? They cast the unfortunate babe into the current of a river, that they may at once lose sight of it, and in an instant deprive it of life. You have given me the name of Father of the People: though I cannot feel for these infants the tenderness of the parents to whom they owe their being, I cannot refrain from declaring to you, with the most painful feelings, that I absolutely forbid such homicides. The tiger, says one of our books, though it be a tiger, does not rend its own young; towards them it has a feeling breast, and continually cares for them. Poor as you may be, is it possible that you should become the murderers of your own children? It is to show yourselves more unnatural than the very beasts of prey.—*Lettres Edifiantes*, vol. xix, pp. 101–2.

wife give no children to her husband, she is bound by every tie of duty to encourage and to patronize a concubine through whom his name may be preserved, and provision made that when he leaves the world honours will be done to his manes. One of the most popular of Chinese writers says, "There are in the world wives who, never having borne boys nor nourished girls, even when the husband has reached the age of forty, prohibit his bringing home a concubine or entertaining a handmaid for the purpose of continuing his posterity—they look upon such a person with jealous hatred and malignant ill-will. Alas! do you not know how fleet is time! Stretch as you may your months and your years, they fly like arrows; and when your husband's animal spirits and vigorous blood shall be exhausted,—then indeed he can never beget children, and you, his wife, will have stopped the ancestral sacrifices, and you will have cut off his generation—then repentance, though you may exhibit it in a hundred ways, will indeed come too late—his mortal body will die—his property, which you, husband and wife, have sought to keep together, will not descend to his children, but be fought for by multitudes of kindred and relations; and you will have injured not one person—not your husband only—but even yourself; for who shall take charge of *your* coffin and *your* tomb? who shall bury you or offer sacrifices? Alas! your orphaned spirit shall pass nights in tears. It is sorrowful to think of. There are some wives who *do* control their jealousies, and allow their husbands to take concubines to themselves; but they do so (ungenerously) as if they were drinking vinegar and eating acids—they beat Betty by way of scolding Belinda*—there is no peace in the inner house. But I beseech you to act as a prudent and virtuous woman. If you have no children, provide with openness and honesty a concubine† for your husband. If she bear him children, to you he will owe that the arteries and veins of his ancestral line are continued—*his* children will honour you as *their* mother, and will not this comfort you? Give not way to the malignant jealousy of a wicked woman! Prepare not a bitterness which you yourself must swallow."‡

Generally, however, the wife willingly coincides with the husband in introducing into the household any number of concubines whom he is able to maintain—since she exercises over them an undoubted authority, and the child of a concubine is bound to pay higher respect to the first wife than to its own mother. The Chinese illustrate all the domestic relations by imagery, and are wont to say, that as the husband is the sun, and the wife the moon, so the concubines are the planets and the stars of the domestic firmament.

And it has been often truly observed, that though the Chinese may be called sensualists, there is no deification of the grosser sensualities such as is found in the classical pantheons, and in many of the oriental

* *Chang* for *Lee*, *i.e.*, they punish the concubine's servants to be revenged on the concubine. † Genesis xxx, 1–13.

‡ From the *Perfect Collection of Household Gems.*

forms of faith. Tales of the amours of their gods and heroes seldom figure in their historical books or traditional legends. The dresses and external habits of the women in China are invariably modest, and on the whole the social arrangements must be considered friendly to an augmentation of the human race. The domestic affections are strong. Parents are generally fond and proud of their children, and children obedient to their parents. Order is indeed the first law of Confucius—authority and submission the apex and the basis of the social pyramid.

The sentiment of dishonour attached to the extinction of a race by the want of descendants through whom the whole line of reverential services (which some have called religious worship) rendered to ancestors, is to be perpetual, is by no means confined to the privileged classes in China. One of our female servants—a nominal Christian—expressed her earnest desire that her husband should have another wife in her absence, and seemed quite surprised that any one should suppose such an arrangement to be in any respect improper.

The marriage of children is one of the great concerns of families. Scarcely is a child born in the higher ranks of life ere the question of its future espousal becomes a frequent topic of discussion. There is a large body of professional match-makers, whose business it is to put all the preliminary arrangements in train, to settle questions of dowry, to accommodate differences, to report on the *pros* and *cons* of suggested alliances. There being no hereditary honours in China—except those which reckon upwards from the distinguished son to the father, the grandfather, and the whole line of ancestry, which may be ennobled by the literary or martial genius of a descendant—the distinctions of caste are unknown, and a successful student even of the lowest origin would be deemed a fit match for the most opulent and distinguished female in the community. The severe laws which prohibit marriages within certain degrees of affinity (they do not, however, interdict it with a deceased wife's sister) tend to make marriages more prolific, and to produce a healthier race of children. So strong is the objection to the marriage of blood relations, that a man and woman of the same *Sing* or family name cannot lawfully wed.

Soldiers and sailors are in no respect prevented from marrying. I expect there is—from the number of male emigrants—from the greater loss of men by the various accidents of life—and their abstraction in many circumstances from intercourse with women—a great disproportion between the sexes, tending naturally enough to lower the appreciation of woman; but correct statistics are wanting in this, as indeed in every other part of the field of inquiry.

The proportion of unmarried to married people is (as would be deduced from the foregoing observations) exceedingly small. To promote marriages seems everybody's affair. Matches and betrothings naturally enough occupy the attention of the young, but not less that of the middle-aged and the old. A marriage is the great event in the life of man or woman, and in China is associated with more of pre-

liminary negociations, ceremonials at different steps of the negociations, written correspondence, visitings, protocols, and conventions, than in any other part of the world.

I am in hopes that we may be able to obtain the vital statistics of some given district, from which more accurate results might be deduced than are afforded by any existing *data*. I keep this object in view.

I have, &c.,

JOHN BOWRING.

Geo. Graham, Esq., *Registrar-General, &c., &c.*, London.

Table I.

	Reign of Monarch.			A.D.	Population.	
1	Hungwu	26th	Year,	1393,	60,545,811	Mirror of History,—*Chinese Repository*, vol. x, p. 156.
2	Hungchi	4th	,,	1492,	53,281,158	
3	Wanleih	6th	,,	1579,	60,692,856	
4	Shunchi	18th	,,	1662,	21,068,600	General Statistics of the Empire,—*Medhurst's China*, p. 53.
5	Kanghi	6th	,,	1668,	25,386,209	
6	,,	49th	,,	1710,	23,312,200	
7	,,	49th	,,	1710,	27,241,129	Yih-tung Chi, a Statistical work,—*Morrison's View of China.*
8	,,	50th	,,	1711,	28,605,746	General Statistics, *Chinese Repository*, vol. i, p. 359.
9	Kienlung	1st	,,	1736,	125,046,245	*Mémoires sur les Chinois*, tom. vi,—quoted by Grosier, and by De Guignes: Voyages à Peking, tom. iii, p. 72.
10	,,	8th	,,	1743,	157,343,975	
11	,,	8th	,,	1743,	149,332,730	
12	,,	8th	,,	1743,	150,265,475	"*Les Missionaires*," De Guignes, tom. iii, p. 67.
13	,,	18th	,,	1753,	103,050,060	General Statistics,—*Cdinese Repository*, vol. i, p. 359.
14	,,	25th	,,	1760,	143,125,225	Yihtungchi, a Statistical work,—*Morrison's View of China.*
15	,,	25th	,,	1760,	203,916,477	*Mémoires sur les Chinois*, tom. vi,—De Guignes, tom. iii, p. 72.
16	,,	26th	,,	1761,	205,293,053	
17	,,	27th	,,	1762,	198,614,553	*Atlerstain: Grosier: De Guignes*: tom. iii, p. 57.
18	,,	55th	,,	1790,	155,249,897	Z. of Berlin, in *Chinese Repository*, vol. i, p. 361.
19	,,	57th	,,	1792,	307,467,200	General Statistics,—Dr. Morrison, *Anglo-Chin: Col: Report*, 1829.
20	,,	57th	,,	1792,	333,000,000	Statement made to Lord Macartney — Statistics, — *Chinese Repository*, vol. i, p. 359.
21	Kiaking	17th	,,	1812,	362,447,183	

Table II.—Table of the different Censuses of the Eighteen Provinces.

Provinces.	Area in English Square Miles.	Average Population to a Square Mile, according to last Census.	Census in 1710 or before.	Census of 1711.	Census of 1748.	Census of 1753.	Census of 1762, or 1765.	Census of 1792 (Macartney).	Last Census of 1812.	Revenue in Taels of 1·33 Dollars each.
Chihli	58,949	475	3,260,075	3,274,870	16,702,765	9,374 217	15,222 940	38,000,000	27,990,871	3,942,000
Shantung .	65,104	444	....	2 278.595	12,159,680	12,769,872	25.180,734	24,000,000	28,958,764	6,344,000
Shansi	55,268	252	1,792,329	1,727,144	8,969,475	5,162,351	9,768,189	27,000,000	14,004,210	6,313,000
Honan	65,104	420	2,005,088	3,094,150	12,637,280	7.114,346	16,332,507	25,000,000	23,037,171	5,651,000
Kiangsu ...	44,500	850	3,917,707	2,656,465	26,766,365	12,618.987	23,161,409	32,000,000	37,843,501	11,733,000
Nganhwui .	48,461	705	1,350,131	1,357,829		12.435,361	22,761,030		34,168,059	3,744,000
Kiangsi ...	72,176	320	5,528,499	2,172,587	6,681,350	5,055.251	11,006.640	19,000,000	23,046,999	5,856,000
Chehkiang .	39,150	671	2,710,649	2,710.312	15 623,990	8,662,808	15,429,690	21,000,000	26,256,784	2,344,000
Fuhkien ..	53,480	276	1,468,145	706,311	7,643.035	4,710,399	8,063,671	15,000,000	14,777,410	2,091,000
Hupeh	70,450	389	469,927	433,943	4,264,850	4,568,860	8,080,603	14,000,000	27,370,098	1,905,000
Hunan ...	74,320	251	375,782	335,034		4,336,332	8,829,320	13,000,000	18,652,507	3,042,000
Shensi	67,400	153	240,809	2,150,696	14,804,035	3,851,043	7,287,443	18,000,000	10,207,256	563,000
Kansuh ...	86,608	175	311,972	368 525		2,133,222	7,812,014	12,000.000	15,193,125	968,000
Sz'chuen ..	166,800	128	144,154	3,802,689	15,181,710	1,368,496	2,782,976	27,000,000	21,435,678	2,193,000
Kwangtung	79,456	241	1,148,918	1,142,747	6,006,600	3,969,248	6,797,597	21,000,000	19,174 030	794,000
Kwangse ..	78,250	93	205,995	210,674	1,143,450	1,975,619	3,947,414	10,000,000	7,313,895	185,000
Kweichau .	64,554	82	51,089	37.731	255,445	1,718,848	3,402,722	9,000.000	5,288,219	432,000
Yunnan ...	107,969	51	2,255.666	145,444	1,189,825	1,003,058	2,078,802	8,000.000	5,561.320	....
Shingking .	....	....	4,194	....	235,620	221,742	668,852	....	2,167,286	....
	1,297,999	268	27,241,129	28,605,746	150,265,475	103,050,060	198,614,553	333,000.000	362,447,183	58,100,000

Canton, 29th June, 1855.

Dear Sir,—In respect to the question of the population of China, I have nothing new of any general application to the subject. It would be a good service to the statistics of the race, for Hienfung to make out a general census, as his grandfather did, now forty-three years after the last.

The visits made to villages and towns in this prefecture since the breaking out of disturbances last June, have strengthened rather than diminished one's faith in the accuracy of the census. Large towns, like Shihlung, Kiúkiáng, Kinchuh, Fuhshán, Sintsiun, and others, have been found to contain even larger numbers than the representations of the Chinese had led one to believe. Fuhshán occupies even more ground than Canton, rather than less; and several observers agreed in estimating the portion which was burned last autumn as large as the entire western suburbs of Canton. Sintsiun is estimated at half a million, though data are wanted to confirm this figure. You will see a list of villages enumerated by Mr. Bonney, in the "Anglo-Chinese Calendars for 1852 and 1853," all of which were situated within a radius of two miles of Whampoa, or on Fa-té Island, West of Macao Passage. Few spots in the world maintain a denser population than the delta of Pearl River, nearly all of which is included in the prefecture of Kwángshan, which is about one-ninth of the whole province. Its density of population doubtless is greater than any other equal area in the whole province; for if the whole contained as many, the entire amount could hardly be less than thirty millions instead of nineteen millions as now reckoned.

The Registrar-General must needs be content with an approximate estimate, from the nature of the case, our inability to make minute personal examination, and the lapse of time since the last general census. Huc, I see, estimates the combined population of Wúcháng, Hányáng, and Hánkau in Húpeh, at the high figure of eight millions, if I remember aright, for I have not the book to refer to; this is more than I have seen any one else reckon it. He gives one the impression of a highly cultivated and well-peopled region in Eastern Sz'chuen, too, and through the valley of the Yángtsz' in Húpeh. I have no special data to add to these general remarks on this subject; but if I could put as much credence in Chinese historical and political statements as I do in their statistical, I should think much more of their value. It is a melancholy reflection to think that so vast a portion of our race is almost entirely ignorant of God and his truth.

Most truly yours,

S. W. Williams.

Extracts from the Journal of Capt. M. S. Nolloth, H.M.S. "Frolic."—*St. Augustine Bay, Quillimane, &c.*

(Concluded from page 197.)

I believe that little has become known in Europe of the social state of Madagascar, generally, since the reluctant departure of the English Missionaries some twenty years ago. King Radama, until his death in 1828, supported the Missionaries in all their efforts for the religious and secular improvement of his people, in spite of powerful opposition from native ignorance and superstitious prejudice, and from self-interested motives—both domestic and foreign.

Although he tolerated Christianity throughout the land and encouraged its teachers, merely for the sake of the obvious advantages of increased commerce and the introduction of the useful arts, the success of the Europeans in all respects—including letters and printing—was extraordinary; and most Englishmen at all acquainted with its modern history will always feel much interest in the welfare of this great African island.

Queen Ranavalomanjaka, who was one of the late King's wives, has always been a bitter persecutor of Christianity and of all foreign ameliorating influences. She must now be rather aged, and if the existing effects of former Missionary endeavours bear any due proportion to those known to have remained among some of all classes at the capital Tananarivo and its neighbourhood, long after she commenced her reign, great changes may be expected to take place at her death.

Various parts of Madagascar have for some years past supplied the plantations of Bourbon with Emigrés, Travailleurs, or Cultivateurs, as they are indifferently called: a free passage back is granted if required at the close of the term of their engagement, and I was informed at St. Augustine bay that about one hundred returned émigrés had been landed there shortly before our arrival. I endeavoured, without success, to obtain some information concerning the fate of such natives, and whether, as I thought probable, any separate settlement had been formed by men, who, during a residence for years in a fertile European colony, must have acquired some knowledge of the wants and comforts of civilized life, and of the means of turning their own soil to account.

My friend the Secretary only knew that the émigrés shipped at the bay came from the interior, that no St. Augustine men ever emigrated, and that others who did were, as he termed them, "plenty no goot"—useless fellows who were free men, and could not get a living for themselves in their own country, &c. He neither knew nor cared what became of those who returned, and seemed to speak of them with feigned contempt, as not worth inquiring about. The St. Augustines doubtless derive some advantage from their port being one of the places of export.

From the uncertain information I could obtain, it appears that

negroes of various tribes are brought from different parts of the interior to Fort Dauphin, Lucas, Runfus, and also to several parts of the west coast between Nossi Beh and St. Augustine, by chiefs who hand them over to the resident Bourbon agents: the latter apprise the native parties inland connected with them of the arrival of any émigré vessel, and the negroes are marched down to the coast by daily stages of from ten to fifteen miles, and generally arrive in very good condition.

The French appear to take considerable pains to prevent the system from degenerating into slave-trade. A military officer sails in every vessel licensed: it is his duty to see that the government regulations are complied with, and no engagement is binding without his sanction. The rank of the officer depends on the size of the vessel. Each vessel is allowed to carry one negro per ton burden.

One-tenth of the persons imported must be females: a fine of ten piastres (£2) is imposed for each female short, and a premium of the same amount is granted for each one in excess of this proportion. Children cannot be shipped unless accompanied by one parent. None can be engaged under promise of lower wages than two piastres per month for men, one and a half for women, and one piastre for children from ten to fourteen years of age, nor without an agreement for a free passage back, if required, when they have served the period agreed upon—which must not exceed five nor be less than three years.

No sum can, legally, be paid for the delivery of the negroes, who are supposed to understand and to make the bargains for themselves: no slave can be bought on the plea of intending immediate manumission.

The sum ordinarily received by the importers, from the Bourbon planters, averages one hundred piastres for a grown male, and sixty for a female. I was informed by the military officer in charge of an émigré vessel that 4,120 negroes were imported last year, and that this was the greatest number yet obtained in one year. Some of these negroes were procured from Africa (probably the exportations complained of by the Governor-General of Mozambique), but by far the greater portion were from Madagascar.

I visited the émigré vessel—a wholesome craft of 172 tons: she had in six weeks obtained but thirty-four men and one woman, and reckoned on a further detention of a month to complete her complement of 172. The negroes were fine, healthy-looking fellows, and very cheerful: they were at liberty to move about any part of the vessel. I went on board suddenly, and found no one in confinement.

It must be admitted that freedom of action in negroes procured in a slave country is liable to some suspicion at all times, and I thought a *petit cadeau* of twenty-eight francs, or of articles of this amount, to the chief or person in charge of the gang, a somewhat significant feature; but this is vindicated on the plea of paying the necessary cost of collecting the volunteers, and their travelling expenses to the coast. However this may be, it is to be hoped, that with all the abuses inseparable from such a system, even the best devised, and with the most

honest European agents, the good outweighs the evil, and that the great benefit which Bourbon, only 450 miles distant, must derive from so near a mine of labour is to a considerable extent repaid to this slaving and barbarous country. If a settlement of returned émigrés could be formed on an eligible spot near the coast, under the protection and fosterage of the importing State, the reciprocity of benefit would be less doubtful.

It seems that the émigrés from the neighbourhood of Cape St. Mary are those about whose willingness to try their fortune in another land there is least doubt, but whether they are perfectly free men in their own place, or runaways from slavery I could not ascertain. As may be supposed, many who ship are deserters from their Hovah masters.

The French had formerly several settlements on the east coast which is still frequently visited by vessels from Bourbon and Mauritius. Many of the names on this coast are French, or of French termination, and a small island a few miles to the northward of Tamatave (or Tamatava) affords a ludicrous instance of the corruption of names, if a Frenchman whom I met at St. Augustine bay was correct in stating its true appellation to be "Ile Aplomb" or "d'Aplomb," on account of its steep-sidedness. In the Admiralty chart this same island is called "Plumb Island;" in *Horsburgh's Directory* it appears as "Plum Island," and the French, in their fondness for translation of proper names into their own tongue, have converted this corruption of their own "d'Aplomb" into an "Ile de Prunes." Turned back into English it figures in Laurie's chart of the world as "Prune Island."

A little farther North is Foule point: this point, as appears by the Admiralty chart, has a supposed shoal off it, and is bordered by a reef, and as the French word *foule* will not apply, the original name has probably undergone an equally mischievous metamorphosis.

The French have here as elsewhere their "Iles de Sable," and if a correspondence between names and appearances be useful to the seaman, the "Sandy Island" here used seems decidedly preferable to the "Sable Islands" of other parts of the world, as sandy beaches or islands—especially of coral regions in the tropics—are far from presenting a *sable* hue.

During our cruise in the Mozambique Channel we never met a British vessel at sea nor in port, nor any British merchant ashore. I was informed, wherever I made inquiry regarding our commerce, that the English had no longer any trade in these parts: the reasons assigned were various. By some I was told that we had been completely beaten out of the markets, and with regard to Zanzibar and Mozambique, chiefly by the Americans, who had generally contrived to undersell us latterly, even in articles of British produce. It is said that other nations used to *cultivate* the trade more—took greater pains to establish connexions—employed a more intelligent or better-informed class of merchant captains or supercargoes—men more permanently engaged in the trade, in which also they frequently had a direct interest themselves.

The trade, it is said, differs much from that in many other parts of the world—requiring great steadiness of conduct and considerable tact and management in dealings with the Moors, Arabs, and other natives. Cargoes are not often to be procured wholesale, but must be picked up little by little at intervals and at various places to be visited to and fro. I believe that the movements and the business, generally, of whaling-vessels afford great trading facilities to the Americans.

But it would seem that the trade of the Mozambique, altogether, is in a far less thriving state than might be expected. It may be reasonably supposed that the cessation of the foreign slave-trade has caused a desire in the natives, generally, for legitimate and not unduly restricted commerce with Europe and America, as it was chiefly by slaving that they were formerly supplied with foreign goods—articles to the use of which the people of the coasts, and through them many of the tribes of the interior, must have been long accustomed, but the knowledge of and desire for which must decline in the absence of either slave or sufficient ordinary foreign traffic.

On the sea-board within the nominal territory of the Portuguese are various isolated communities of Moors, mixed races—more or less pure of arab and negro blood; who fly the arab flag although they consider themselves a distinct people; who cordially dislike their so-called masters, and who would resist to the utmost any decided attempt to reduce them to actual subjection. These people, although little disposed to agricultural pursuits, are exceedingly fond of trading and of travelling in search of it, and I believe that in many parts it is chiefly through them that any produce from the interior reaches the European vessels visiting their coasts—ivory, the principal article exported by the Portuguese from their settlements, gums, hippopotamus' teeth, rhinoceros' horns, gold-dust, colombo root, fancy and other woods, dye-stuffs, tortoise-shell, oil seeds, tiger skins, elephant tusks, &c., being eagerly exchanged for European articles for their own use, and for their inland traffic with the negroes. In slaving times it was common to see troops of negroes marching under convoy of a few of these men, from the interior to the barracoons on the coast, each slave carrying a large elephant tusk, to be sold and shipped with himself on arrival.

No one can doubt the readiness and ability for trading of these men, who may perhaps be called the middle-men between European civilization and the barbarism of Africa. I have already shown that a large party of them—I believe about one hundred—traversed Africa from Zanzibar to Benguela with goods for barter, and again starting from the west coast, kept, during a patient journey of fifteen months, turning their newly acquired wares to profit till their arrival at Mozambique "without having to give any information unfavourable to commerce, but the contrary."

With these promising elements, commerce in the Mozambique appears to be nearly at a stand-still, or perhaps it should be said that it has yet to be created. One is therefore inclined to attach some weight to the common complaints of the heavy duties levied on foreigners by

the Portuguese Colonial Government, and of the exclusiveness of its commercial policy, which, notwithstanding the Lisbon Decree of 1853, still virtually closes to us the places most worthy of visit—which places will probably remain closed for ever, if the existence of Portuguese custom-houses should continue to be a condition necessary to our admission.

It is indeed to be feared that foreign commerce will have long to wait if matters are to continue as they are, until the fiscal arrangements of the Government are definitively organized. Before new fiscal ports can be opened, the Governor-General must possess, not merely the authority of the Home Government to establish them when and where he may think them necessary, but the consent of formidable parties who consider themselves deeply interested in the matter, and I have been assured by persons apparently well-informed that within the thousand miles of sea-board claimed by the Portuguese in East Africa there are not, in the aggregate, more than fifty miles on which one of their officials could land with safety. The greatest extent of their undisputed coast is, I believe, in the vicinity of Quillimane.

Considering the insignificance of the European force on this coast, and the dislike of the natives generally to the rule of the Portuguese, it would appear that the latter would have but a loose hold of their possessions, if anything in the shape of co-operation could be brought against them. Perhaps it is but the want of this, and of a Chief to unite and lead their efforts, that has prevented the discontented natives from long ago ridding themselves of a people who, in their opinion, have never attempted to benefit them, who cannot reduce them to subjection, and who, while unable fully to develope the resources of the land themselves, shut its gates to the rest of the world.

An instance came under my own observation of the difficulties experienced by the Moors in their efforts to pursue a profitable trade with foreigners. I was at the house of a merchant, on one of the islands in the Mozambique Channel, when a dhow arrived from Angoxa with a letter in Arabic from the Sultan, begging him to lay out for him a considerable sum—I think 2,000 Spanish dollars—which he had sent, in European or American articles loosely specified, and in any others which his experience might approve of as likely to meet a ready sale on the mainland. The Sultan had adopted this course in consequence of the impediments placed in the way of more direct trading; but the merchant informed me that owing to the Chief's ignorance of the proper names and exact qualities of the various articles apparently required, he should feel great uncertainty in fulfilling the request.

I have said that I was deterred from visiting Angoxa after quitting Mozambique by the circumstance of two vessels-of-war with troops being about to sail for its vicinity at the same moment, as it might have been difficult, after former occurrences, to convince the semi-barbarian Chief that the coincidence of our arrivals was purely accidental. As far as I could learn at Mozambique, the Commander of the expedition had instructions to establish a fort on an islet, or point of land, near the entrance of the river, and not, if avoidable, to come into collision with the natives—who are rather bellicose—but to "coerce subordination."

About fifty or sixty dhows visit Angoxa in the course of the year with powder, muskets, bale goods, notions, &c., and the purpose, apparently, is to establish a strong-hold for the troops and stores near the entrance of the river, and to cruise outside to levy the duties.

Between Mozambique and Angoxa are a tribe, called the *Shangogi* —I do not know of what race—who appear to have joined the Portuguese as allies against the latter. The land surrounding Angoxa is very fertile, and although the bar of the river is shallow there is fair anchorage for large vessels outside, and it seems favourably circumstanced in many respects for trade.

It is said that before the Tette war, these eastern possessions were entirely self-supported and that a small revenue was remitted home, but that for the last two years the expenditure has been about 170,000 against a revenue of, in round numbers, 80,000 dollars.

It may be looking a long way ahead, and a good way south to imagine that, at some future period, British enterprise from Natal and other promising parts of our Cape Colony, acting upon non-slaving principles, may draw from the lands at the back of the Portuguese settlements, the produce which, knowing no other outlet, now flows in dribblets to the eastern coast. In this case, unless greater energy than can be expected should be exercised, the Rule of more than three centuries would die a natural death, and leave few mourners but slavers behind.

During our cruise in the Mozambique we had generally light winds, almost invariably from E.S.E., or calms, and smooth water, nearly the whole time. September is considered the calmest month of the year throughout the channel. The N.E. monsoon is thought by the Johanna people, who occasionally trade to Zanzibar, to reach them about a fortnight later than the latter island. A person who had resided seven years at Johanna told me that its first decided "blow" had occurred there on the 25th December in three successive years. Throughout the channel, the S.W. is the fine and dry weather monsoon, viz., between April and the end of November, at about which time (or earlier at the northern part) decided tokens of a change have, ordinarily, taken place—as heavy clouds with passing showers, shifts of wind in squalls, and, occasionally, lightning. At Quillimane we were told that the heaviest rains, accompanied by much lightning, occur there in January and February.

The following abstract from the Meteorological Register is for *noon only*, and when away from the immediate influence of the land, between the parallels of St. Augustine Bay and Zanzibar.

October 1st to December 14th.

Bar.	Mean 30·21	Max. 30·36	Min. 30·10	
Att. Ther. ...	Mean 80·5°	Att. Ther. 76·5°	Att. Ther. 81·0°	Corr.
Air in shade ..	Mean 80·8°	Max. 84·0°	Min. 76·0°	

Sea at surface.

Sp. gravity ..	Mean 1026·0	Max. 1027·4	Min. 1025·0	
Temp.	Mean 79·3°	77.2°	79·7°	Corr.
		Max. temp. 83·7°	Min. 74·7°	

The greatest difference observed between the temperature at surface and that at 100 fathoms, was on the day of greatest surface temperature, when it was 25·1°—the temperatures being 83·7° and 58·6°.

Attempts were made to ascertain the depth in various parts of the channel, but, owing to the unfitness of the line employed, the following is the only result worth mention.

Oct. 11th, p.m., in lat. 17° 48′ S., long. 41° 22′ E., viz., nearly equidistant, or about 130 miles from Madagascar and from the coast of Africa, a piece of ballast, weighing 100lbs., was let go from boat at

h.	*m.*	*s.*				*m.*	*s.*	
3	21	10						
3	22	12	1st 100 fathoms ran out in			1	2	
3	23	38	2nd	,,	,,	1	26	
3	25	28	3rd	,,	,,	1	50	First 500 fms. in 9m. 23s.
3	27	56	4th	,,	,,	2	28	
3	30	33	5th	,,	,,	2	37	
3	33	33	6th	,,	,,	3	0	
3	36	49	7th	,,	,,	3	16	
3	40	19	8th	,,	,,	3	30	Second 500 fms. in 17m. 20s.
3	44	1	9th	,,	,,	3	42	
3	47	53	10th	,,	,,	3	52	
3	52	1	11th	,,	,,	4	8	
3	56	19	12th	,,	,,	4	18	
4	0	50	13th	,,	,,	4	31	Third 500 fms. in 22m. 52s.
4	5	30	14th	,,	,,	4	40	
4	10	45	15th	,,	,,	5	15	
								(1,500 fms. in 49m. 35s.)
4	19	1	16th	,,	,,	8	16	
4	26	41	17th	,,	,,	7	40	
4	34	23	18th	,,	,,	7	43	Fourth 500 fms. in 39m. 21s.
4	42	30	19th	,,	,,	8	7	
4	50	5	20th	,,	,,	7	35	

At 1,500 fathoms the line stopped suddenly, when it was ascertained that the weight had not parted, and it was allowed to run out again, as it did in a few seconds—after which it again stopped and ran out alternately, to 2,000 fathoms, when it was made fast to the boat. In a short time a considerable strain—probably as much as it would bear—was found on the line, which then appeared not quite up and down, and the bight was secured to a float of gratings and oars which in a few seconds sank several feet below the surface. The float was hauled up, and a number of fathoms hauled in, when the end, having been unbent from the part got in, slipped out of the mens' hands and was lost.

It was clear that at 1,500 fathoms the weight had struck bottom, and that a current, or currents, had afterwards acted upon the bight of the line.

In the Mozambique Channel, a stranger is liable to be deceived sometimes, by the whirls or circling eddies of meeting currents—such as on one occasion to have deceived an experienced officer, who, when aloft, supposed that nothing but letting go the anchor could save the

vessel from being driven on the rocks which he thought he plainly saw close to us. This was about half-way between the south extreme of Zanzibar and the north end of Latham Island.

We passed through two or three ripples, but none so decided as those common in the China seas.

We frequently traversed immense quantities of very small Medusæ, and of what seamen commonly call "whales' food," or "whales' spawn," or "grass seed," &c., some patches resembling fine reddish saw-dust, some composed apparently of flattened tubes not unlike vermicelli, and others of a greenish slime. These vast fields of animal life—extending with little intermission throughout runs of from thirty to sixty miles—consisted chiefly of various species of infusoria, and numerous star-like bodies of five, six, and seven apparently hollow rays, with here and there a microscopic shell, and small white insects skipping over the surface. One minute creature of common occurrence, less than half an inch in length and, like a glass tube, open at both ends, amused us with its antics, for several days, in a glass of water, in which its water-like translucent substance could scarcely be distinguished: occasionally it drew in, seemingly filled itself with, the fluid and, by ejecting it, forced itself ahead or astern by the reaction: now and then as if tired of its sport it would contract itself into a solid ball and sink to the bottom, where it lay as dead until by suddenly increasing its volume with both ends closed it would rise again to the surface and resume its frolics. It evidently enjoyed life, and yet, so evanescent was its structure, that on my placing it on a piece of blotting paper, all but a small speck of nucleus vanished into moisture.

On one occasion shoal water was reported, and the appearance, as we passed close to it, certainly warranted the warning, but it consisted of detached portions of one of the bright yellow patches, which, reflected from the intervening spaces of smooth undulating blue water, showed as strong a resemblance to the light-greenish appearance over a shoal as I have ever seen.

In former days when the Channel was frequently taken by vessels bound to India—particularly those to Bombay—shoals of unknown position and extent, with strong and uncertain currents, like rivers running side by side, so that a very short easterly or westerly run might make the difference between being carried fifty or sixty miles one way or the contrary beyond your reckoning in the twenty-four hours, must have rendered the navigation of the Mozambique anxious work—as the frequent wrecks too truly showed—but surveys and chronometers have happily made a great change, and with the addition of steam there is now cause for little more than the ordinary anxiety of life at sea.

With regard to health we were not more fortunate than others, and I believe few vessels escape sickness altogether after visiting Zanzibar. No decided climatic complaint showed itself—excepting unusual lassitude which many felt—until after our departure from that island. In a few days there were several cases of low fever and diarrhœa: on

the fourteenth day one man died: about a week after we lost another: several, including two Englishmen whom we had taken on board at Johanna for a passage to the Cape, were seriously ill, and eventually very few on board had been perfectly exempted.

At Zanzibar we had found the alleged causes of its frequent unhealthfulness as numerous as is usual when causes are unknown: some attributed it to the air, some to the water, some recommended abstemiousness, and others rather generous living. However, we know that Zanzibar is a low island, swampy in parts, with luxuriant vegetation and within seven degrees of the line, and that you are less liable to suffer afloat than ashore, and most liable in the interior, where the mortality of the negroes is considerably greater than in the town. Greater physical exertion with inferior food and lodging may partly account for the superior mortality of the country-people, but during Owen's survey four out of a boat's crew of five, being unable to fetch the ship at night, slept by a fire in the jungle: of these, three died of fever about a fortnight afterwards; the fourth was, on arrival at the Cape, invalided home with faint hope of recovery, and the boatkeeper who remained at his post escaped entirely. Commodore Nourse and several of his Officers slept at a house in the Interior one night: he and most of his companions were seized with fever and of those seized not one had escaped death a few weeks afterwards. Other vessels-of-war have suffered severely.

We had left the Cape with an idea of the possibility of learning something which might at least throw a little light on the fate of the *Nerbudda*. We had already been despatched on a short search for her by Commodore Trotter as soon as her non-arrival had excited apprehension, and for some time a hope was entertained that she had been dismasted in a gale and had borne up for St. Augustine bay, or perhaps for Mauritius, for provisions and repair. On quitting the Cape for the Mozambique, the *Frolic* had received orders to act upon any information derived during our cruize which might seem to afford a chance of ascertaining the circumstances attending her loss: but to this day no vestige has been met of our fellow-brig, nor of her gallant crew of 130 men—as fine a set of young men as ever manned a vessel-of-war, for she sailed from Portsmouth with a company picked from several paid-off crews.

She was bound to Simons bay, cape of Good Hope, after a ten months' cruize in the Mozambique. When off Algoa bay (about three days' ordinary sail from the Cape), finding the quantity of provisions remaining too small to be trusted to in so tempestuous a region, at a season when the prevailing wind is foul, she put into port Elizabeth—completed to ten days' provisions and sailed. She was seen by two vessels in the offing, beating out in a light S.E. breeze, on the evening of the 9th June. A heavy North-Wester came on suddenly—the two merchant ships arrived at the Cape much damaged and having had two or three men washed overboard; the poor *Nerbuddas*, our friends and fellow-stationers, have not been heard of since.

The suddenness of a North-Wester off the Cape, and to the east-

ward, in the winter season (and June is occasionally one of the worst months), is well known. The N.W. is then the prevailing wind: after a respite, it at times rushes upon you, with full force, direct from a light South-Easter, and meeting the westerly current, accelerated by the previous easterly wind, a heavy sea is at once raised. The waves, especially on the edge of the Agulhas bank—unlike the ordinary heavy sea with its friendly slope to lift you as it advances safely over the summit—are *wall-sided*, and before your vessel has received the slightest warning a towering mass of water is by her side—when, likely enough, woe to the small craft not well battened down.

But it is not at all probable that the *Nerbudda* was caught thus unprepared, especially as her Captain and Officers were not strangers to Cape weather.

She was returning from a protracted cruize, and under this circumstance a vessel-of-war is in a far more disadvantageous condition than a merchant ship at the end of a long voyage, whose weights continue much the same as when she left her port. The former has expended the cargo of provisions supplied for her numerous crew and other low-placed weights (while her heavy armament and masting remain intact) thereby reducing very considerably her previous stability. In this condition the ballast stowed by ships of the ordinary build is of very essential service, especially to small craft: but vessels like the *Nerbudda* whose stability is chiefly derived from great proportionate breadth near the surface of the water when at the load draught, carry very little ballast, while decrease of immersion interferes materially with the element to which they previously trusted, and, besides, turns the peculiarity of their form into an aggravation of the motion which in a sea-way is inevitable.

Under all these circumstances it does not I think seem very difficult to conceive that a walled, Cape Sea—its crest advancing with the rapidity of a mighty river bore—might turn such a vessel over in an instant with "one fell swoop." How greatly would her danger be increased, if thus struck at the moment of being taken aback by a sudden shift from S.E. to N.W.! Shortly after the *Nerbudda* quitted Algoa bay, a sudden shift of wind from S.E. to N.W. threw several merchant ships at anchor there nearly on their beam-ends.

Within the last quarter of a century two of our vessels-of-war—the *Delight* and another—have sailed from the Cape without any particulars of their subsequent fate having been ascertained, beyond the fact of portions of the former having been washed ashore at Mauritius a day or two subsequently to her having been seen off the island.

We arrived at Simons bay the 27th December: shortly afterwards, we lost another of our Mozambique sick men, and invalided several others.

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from p. 219.)

China Sea.—Two monsoons prevail in the China Sea, the South or S.W. monsoon and the opposite, North or N.E., and they succeed each other at intervals of six months. The S.W. monsoon blows from May to October—the N.E. from November to May, and they both have considerable influence on those of the adjacent seas. Like those of the Indian Ocean, these monsoons do not set in at the same time in all parts of the China Sea.

On the western coasts the S.W. monsoon begins in April, and is not established out at sea till a month after. It does not prevail on the North coast of Borneo, at Palawan, and the Philippines till between the middle and end of May. In the southern part of the China Sea it is found later than in the northern part of it.

In the Java and Molucca Seas the S.W. monsoon is not established till a month after it prevails in the China Sea. It lasts six months, and terminates, as it does on the coasts of India, before it does out at sea.

The N.E. monsoon, which succeeds it, extends in the same manner successively to the southward out at sea; so that to ascertain when the monsoon would commence in a particular part it would only be necessary to know when the opposite monsoon was established, and then allow it a duration of six months.

In the month of May light variable winds are often found in the China Sea, and with the S.W. monsoon, East or S.E. winds are occasionally found for a day or two. This occurs chiefly in the northern part of the China Sea, and also frequently during either monsoon.

In the S.W. monsoon, especially from June to August, there are heavy rains, sometimes attended by violent squally weather. At the same time in the Formosa Channel the wind is frequently found varying between North and East. These three months are the strongest of the S.W. monsoon and those in which it is most steady. In September the wind is unsettled, often varying between N.E., East, and S.E. However, S.W. winds are still found to prevail, and last till the syzygy of the beginning of October. The monsoon then changes, and about this time a storm occurs, in which the wind comes from S.W., changing to West and N.W., bringing rain; the wind afterwards changes successively to N.N.E. and E.N.E., and then the N.E. monsoon is established. The month of October is a bad one for the navigation of the China Sea. Sometimes it is rainy; generally, however, at the close of the month the weather sets in fine.

The N.E. monsoon commences on the western coast of the China Sea about the 15th October. In the southern part of this sea it is seldom found before the month of November. In some years September and October are fine and the N.E. monsoon does not invariably set in with a squall. It is at its height in December and January.

This monsoon is sometimes attended with rain, and always produces much sea, especially near Pulo Sapata and between this island and Singapore. But it is not without its intervals of fine weather. The variable winds of October, November, and the beginning of December which blow on the coast of Palawan admit of sailing N.E. and S.W. during these months, but frequently with a cloudy sky and dull weather.

During the N.E. monsoon the wind is generally from North to N.E. on the coast of Luconia, and when it occasionally veers to N.W. or West it blows hard, with rain. This N.E. monsoon weakens in February. During this month and that of March it is but moderate, and the weather is then very fine in the China Sea.

Towards the end of the monsoons, when they lose strength, alternate land and sea breezes are found on the coasts. In March and April they are fresh and most regular. Towards the end of September and beginning of October they are also established, but are not so strong as in the former months, nor are they established so regular. At the change of the monsoons the wind is unsettled and variable. These periods are distinguished by stormy weather, and those of the September equinox are severe as well as those of October. In these months, as well as in November, the wind is fresh with occasional calms, but of short duration.

Coast of Malacca.—On the eastern coast of Malacca the weather is fine from April to October, while it is bad on the western coast of the same peninsula. On the eastern coast in the month of June a S.E. wind blows during the day; in the evening it changes to West, lasting till ten or eleven o'clock in the morning.

During the N.E. monsoon rain is constant on this coast, and the change from the S.W. monsoon to the N.E. is frequently attended by heavy storms. The return of the S.W. monsoon at the conclusion of the N.E. takes place calmly and quietly.

Gulf of Siam.—In the Gulf of Siam the monsoons set in and finish sooner than in the other parts of the China Sea, and the wind there is generally not so regular. The S.W. monsoon begins in April, and is followed by continual rain during May and June. In July, August, and September the weather is still rainy, with a westerly wind.

On the coast of Siam, from March to May, southerly winds are often found, which from June to August become S.W., blowing very fresh, especially near Pulo Oby. From the month of September the wind becomes variable. In October the monsoon changes with a fresh breeze from S.W. In November, December, and January the weather is fine and the wind steady at North. In February the wind is variable between South and East, and during this month and the beginning of March the land and sea breezes are regular.

On the western coast of the Gulf of Siam, in May, June, and July, when the S.W. monsoon is at its height, a land breeze prevails for from three to twelve days.

Coast of Cambodia.—On the coast of Cambodia, in June, July, and August, there are heavy rains with S.W. winds. On this coast

the monsoons are not regular, and land and sea breezes are met with when the prevailing monsoon is weak. During the S.W. monsoon these breezes do not last more than five or six hours, and they are not so fresh as those which prevail at the end of the N.E. monsoon.

Islands of Pulo Timoan and Pulo Condore.—In the islands of Pulo Timoan and Pulo Condore, the N.E. monsoon is established towards the 15th October with fine weather. The S.W. monsoon brings rain and lasts for eight months. In November, near these islands, we have calms, storms, and rain, with tornadoes. At Pulo Condore the rains last for a month after the establishment of the N.E. monsoon. At Pulo Timoan the wind becomes unsettled in September and the change of monsoon brings bad weather. In November the weather is fine.

On the coast between the Gulf of Siam and Cape Padaran the S.W. monsoon blows along the shore. Sometimes, near the land, during night, a light land breeze is found, which, falling calm, is succeeded by the wind of the monsoon, which blows fresh during the rest of the day.

On this coast the N.E. monsoon is established from the end of September or beginning of October till the middle of April.

Coast of Cochin China.—On the coast of Cochin China wintery weather is found with the cold northerly winds, accompanied by rain, that prevail from December to February. The season of the great rains includes the months of September, October, and November. During the N.E. monsoon Easterly winds frequently occur. Between the Paracels and the coast the same winds prevail as far as Cape Varela; and in this channel calms frequently prevail while to seaward from this bank the monsoon is blowing fresh and regularly.

During the S.W. monsoon on this coast the land and sea breezes are tolerably regular, and the sea breeze is replaced every evening by a land breeze, which, although it does not always commence at the same time, blows every night, and is followed by a calm or a light wind, generally lasting till noon, when the S.E. wind again sets in.

On the coast of Cochin China, the winds are variable during the whole year, and the monsoons mostly light. The leeward coast is not dangerous with the N.E. monsoon.

Gulf of Tonquin.—In the Gulf of Tonquin we find two seasons, the wet and dry. The former is the hotter time of year, and begins towards the end of April, lasting until August, when the rains moderate and September and October bring tolerable weather. In November commences the dry season and about the middle of this month strong northerly winds set in, varying to East and E.S.E. towards the close of it.

Towards the end of December the wind from N.N.E. becomes East, accompanied by fog. During January and February it is from N.E. and N.N.E.. In April the wind is not so fresh, nor is the weather so cold. In the Gulf of Tonquin typhoons are met with.

Coast of China.—On the coast of China, from the island of Hainan to Amoy, S.W. and N.E. monsoons are subject to the same variations

generally as those of the China Sea. But on the coast opposite to Formosa it is said that northerly winds prevail for eight or nine months. During the N.E. monsoon on the South coast of China the wind is E.N.E. along the land, sometimes drawing along the coast, and at others to the S.E. We rarely, however, find regular land and sea breezes: those we speak of are more solar breezes. On the South coast of China, during the S.W. monsoon, Southerly and S.E. winds are frequently met with. In June, July, and August there is a great deal of rain there and the weather is dark and cloudy.

On the East coast of China, North of Canton and as far as the Chusan Islands, as already observed, the two monsoons prevail.

The N.E. monsoon on the coast comprised between Macao and Chusan generally begins in October and lasts till the beginning of May. This monsoon is at its height from November to January: it is generally a double-reef breeze. There being always a nasty sea with these winds, which are steady between N.E. and North, ships cannot carry much sail to them, and should always keep as close to the shore as possible, as the sea there is smoother than outside.

In the N.E. monsoon heavy winds, lasting for two or three days, will set in, which are considered to belong to a typhoon at sea. When this violent wind ceases, for several days a light breeze sets in from the East. But after a week or ten days it again freshens, blowing hard, and producing a heavy sea, especially at the entrance of the Formosa Channel.

In October, November, and December, the weather is tolerably fine, and not a day passes without a break in the rainy and cloudy weather. From January to March a great deal of cloud and fog hangs about. In April the N.E. monsoon loses strength for a day or two, sometimes the wind changes to South, when the weather then becomes thick, and heavy squalls follow from N.E., till the middle of May.

The S.W. monsoon, varying to S.S.W. and South, begins in June or July, and ending in October, is attended with storms and typhoons.

In the zone of these monsoons the rainy season on all the coasts facing the West is during the S.W. monsoon; and on the contrary this is the dry season on all those coasts facing the East. When the N.E. monsoon prevails in its turn, the coasts facing East are subject to rain, while those facing West have dry weather.

Formosa Channel.—In the Formosa Channel, between that island and China, bad weather may be looked for at all times of the year. Even in the summer, and also towards the middle of the S.W. monsoon stormy and squally weather prevails, accompanied by torrents of rain.

In the Channel comprised between Formosa and the Philippines, bad weather is found at all seasons. In the N.E. monsoon, the wind is principally from E.N.E. as far as the opening of the channel, where it becomes N.b.E. and N.N.E. About the Bashees it is N.E. and E.N.E., causing a heavy sea. On the Eastern coast of Formosa variable Easterly winds are found, favourable for ships

going Northward of the island, but which become there N.N.E. As a general rule, it may be considered that where the wind hauls gradually to the Southward of East, it soon returns Northward again with double its strength. Heavy N.W. winds sometimes last for several days following on the North coast of China, and reach to a good distance out to sea. The barometer is of little use in giving warning of these winds, common as they are, for it is very high with a strong Northerly wind which sometimes prevails. When the wind has gone round the compass, it generally returns suddenly to North, blowing so hard as to compel ships to shorten sail.

Philippines.—Among the Philippine Islands prevail the two regular monsoons which are met with in the China Sea. They even sometimes extend as far South as the Marianne Islands in the Pacific Ocean, and as far North as the coast of Japan.

The Philippines being a group lying North and South, their high land naturally interrupts the regular course of the wind: and hence it is, that at forty or fifty leagues from them ships encounter so much bad weather sometimes, and which becomes worse as the islands are approached.

The N.E. monsoon begins about October, with fine weather lasting till April, and varying to the Northward; but if it should veer occasionally to N.W. it blows hard.

The S.W. monsoon is not known here till between the beginning and end of May: nor does it become regular till June. During this monsoon the weather is gloomy, cloudy, without a tint of rain. Sometimes about this period severe storms occur, called *Collas Tempestades* or *Vaguios*. They are generally accompanied by thunder and rain, the wind changing about and blowing with the same force from all points of the compass. These collas and bad weather take place at the end of July or middle of August, and sometimes in October. They are not unlike the typhoons, which will be noticed presently.

In September the wind loses strength, the rain is less, and the sky becomes fine; but this in some degree is compensated by morning fogs, which last till noon.

At the change of monsoons bad weather is sometimes experienced as in the China Sea.

Island of Luconia.—In February and March, about the end of the N.E. monsoon, on the coast of Luconia, the wind is variable, and often with a tendency to follow the course of the alternate land and sea or solar breezes. In the month of April, the alternate winds are well established; and from June to October, the period of the S.W. monsoon, the wind which blows upon the coast at right angles to it brings rain.

Island of Palawan.—The island of Palawan does not present anything in particular, and the monsoons near it are the same as those of the China Sea. Near the West part of this island, however, in September and part of October, there are strong S.W. winds, accompanied by dark and rainy weather. On the North coast in these months and

in December, the wind is variable, but fair for vessels from N.E. or S.W.; but the weather is generally cloudy at this season.

Island of Borneo.—The island of Borneo forms the N.W. and Western boundary of the China Sea. This island is intersected by the equator; and, as we find in Sumatra, the consequence is that the monsoons of the N.W coast do not happen at the same time as those on the West coast. Thus the .S.W. monsoon prevails on the N.W. coast from May to October, while at the same period the S.E. monsoon prevails on the West coast; and the N.E. monsoon blows on the N.W. coast while the N.W. monsoon prevails on the West coast.

The S.W. monsoon is not established on the Northern part of Borneo till between the 15th and 30th of May: the rain then continual. In September the weather is not so bad, and the dry season sets in with the N.E. winds, varying to East. However, this can hardly be considered the dry season, for, owing to its position under the equator, the island is inundated with rain.

On the Western coast the S.E. monsoon prevails towards the end of May, bringing fine weather. From September to April the West or N.W. monsoon prevails, with heavy rain, and sometimes strong gales.

Typhoons.—The typhoons of the Philippines and the China Sea sometimes extend as far Westward as Calcutta. They are not always preceded by any signs which might place the mariner on his guard against them; in some instances they are preceded by fine weather, with a clear sky and fresh or moderate breezes, generally blowing in an opposite direction to the prevailing monsoon, which is S.W., for the typhoons only happen between June and November. The prelude to one of them is frequently a thick heavy dark cloud near the horizon in the N.E. The upper edges of it are copper-coloured, and the higher they are the more vivid is the colour. When this cloud rises and moves rapidly, the typhoon bursts, producing rain, thunder, and lightning; sometimes an hour of calm succeeds the storm, which generally lasts twelve hours; then the S.W. wind blows almost as hard, and establishes the equilibrium. The barometer is the best indicator of these tempests. Near the coast of China they generally begin from N.W. to North; the wind afterwards veers to N.E. and East, from which quarter they blow strongly, causing a heavy sea and strong currents setting Westward. The wind then changes from East to S.E., then to South, after which they become more moderate. The shifting of the wind in this direction during the typhoon, is only found in those which sweep along the coast of China, for at the distance of forty or sixty leagues from the land, these changes of the wind are experienced in a contrary direction;* that is, the wind beginning at North or N.W., instead of veering successively to N.E. and East, changes to N.W. and West, whence it blows violently, afterwards decreasing in proportion as they reach S.W. and South.

* This results from being on the opposite side of the line or course on which the whole meteor is advancing.—Ed.

Typhoons rarely take place more than once in an interval of three or four years. The zone in which they blow extends from 30° to 10° North latitude, although they rarely pass 16° North latitude. With regard to longitude, they occupy the space comprised between the coast of China and the meridian of 150° East.

(To be continued.)

Loss of the French Steam-Ship "Duroc."

The *Duroc*, steam-vessel, commanded by M. de la Vaissière, Lieut. de Vaisseau, struck the Mellish Reef, 106 leagues N.W. of New Caledonia, in the night of the 12th of August, 1856, from whence she had sailed on the 7th of August, on her return to France. The report which M. de la V. addressed to you of this sad event, has been lost by an accident at sea, which deprived me of provisions and clothing. But I have the satisfaction of informing you that I have conducted the thirty-five persons placed under my orders to Coupang, in Timor, after a voyage of more than 800 leagues in boats.

Permit me, before commencing the narrative of this event, to give you some account of the situation in which I left her commander and the thirty persons who remained with him on the reef on the 20th of August.

This reef is level with the surface of the sea. The position of it differs materially from that given by the charts, and is, according to the observations, in lat. 17° 23′ S., and long. 153° 35′ E. On the morning after the wreck, a sandy islet was seen, about 200 metres to seaward, where, when every hope of saving the ship was abandoned, the commander landed the sick, and provisions, distilling apparatus, oven, forge, and everything that it was possible to carry away in our slight boats and rafts.

While these things were being landed, the captain ordered a boat to be constructed, 14 metres long, from the wreck of the lower masts and the bowsprit, and the spars of the ship, which were landed on the 23rd. Tents were constructed of the sails to shelter the crew and provisions; the distilling apparatus furnished a plentiful supply of water, and there remained at that date about four months provisions for the thirty-one remaining persons. The captain hoped to finish this boat by the end of September, and then endeavour to make some point on the coast of Australia, from whence he might reach Sydney.

In compliance with the orders of Capt. Vaissiere, on the 25th of August, I took the command of a detachment of thirty-five persons, distributed as follows: fifteen men with me in the launch, l'enseigne de vaisseau M. Angey-Dufresse in the large boat with nine men, and the boatswain, M. Leroy, with nine men, in the whale-boat. I had

directed the boats to make the coast of Australia, and to follow it as far as Torres Strait, where M. de la Vaissiere thought that I might meet with a ship to convey me to some place where I might obtain assistance. Unhappily these boats were but of small dimensions; and although not carrying more than twenty-five days' provisions, arms, and two changes of clothing for each man, were too deeply laden to withstand a heavy sea.

I set out on the afternoon of the 25th of August, and having immediately to encounter a heavy sea produced by strong winds, was obliged to defer my departure for two days. From this time the boats were continually shipping seas, and there were but two or three men in each boat who were able to take the helm. I steered for Cape Tribulation, by which I had the advantage not only of steering for a headland remarkable for the distance at which it is visible at sea, but it was also the nearest part of the coast. The necessity of keeping the three boats always in sight, added greatly to my difficulties, and I was therefore always on the look out, especially at night, in order to prevent a separation, which would probably have been fatal to the boat commanded by the boatswain. M. de la Vaissiere had advised me to take them in tow; but this was impracticable, the tow-rope having broken on three attempts, occasioning me considerable anxiety for the safety of the boats.

On the 27th the sea increased so much as to occasion our greatest fears; each boat, for her own safety, had to throw overboard every thing that was not absolutely necessary. My launch had already become half full of water, but after having lightened her considerably, I had to surmount a new danger, at which the men in my boat quailed with terror, men who were accustomed to be out fishing in these boats. As I was taking the noon observation, an enormous wave suddenly washed me out of the boat; and when I rose to the surface, with my instrument in my hand, I was more than a quarter of a cable's length from her. Seeing our barrels and cases of provisions floating by me, I had lost all hope of assistance, when I discovered the whale-boat, which had been astern of us, and by signs made to her from my own boat, she was enabled to make for me and pick me up. I summoned strength to swim towards her, and was only recovered at the moment when all my strength failing I should have sunk. Your Excellency will pardon my dwelling on an event which is in appearance but personal; but the consequences of which were so fatal to the rest of our voyage, that I feel myself bound to give it in detail.

The first results of it were the loss of my instruments and almost all the provisions of my boat, the clothing of the men, all my own clothes and papers, and the correspondence of the captain of the *Duroc*, with his report of the wreck, official letters to the consuls and authorities of the places which I might visit, and, lastly, the books belonging to the men of the large boat.

While the whale-boat was thus unexpectedly recovering me, the chief of my boat, Quarter-master Leary, assisted by a seaman, whom

I cannot too strongly recommend to your notice, named Burel, keeping their presence of mind for a moment, rushed, one to the helm, and the other to the sail, which he lowered, and shipping an oar, they succeeded in putting the boat's head to the sea. In the meantime the others had recovered themselves. Everything was gone overboard,—buckets, shoes, &c.; all serving to bale the boat of water, which had filled her to the thwarts. The crew were once more in their places, and the boat soon rejoined the other two, picking up a case in her way, containing a quantity of biscuit and a cask of water.

It was not until the evening that the state of the sea admitted of my regaining my own boat and resuming the command of her; but deprived as we were of provisions, and of almost all the necessaries of the voyage, from this time I was obliged to trust to the observations of M. Augey-Dufresse, which proved of great service to me, as your Excellency will observe in the continuation of my narrative.

On the evening of the 30th, five days after our departure, we made the land at Cape Tribulation, and passed the night at anchor inside a reef. I had imagined now that the principal difficulties of our voyage were surmounted, instead of which the greater part of our troubles still awaited us on leaving this retreat;—troubles which required from all of us the severest sacrifices and the most devoted resignation. We had passed an islet and a reef on the voyage not marked on the charts. At first I feared being driven on them by the current; but the exactness with which I made the land, convinced me of the truth of the latitudes I assigned to these two points.

On the 28th, at nine in the morning, I gained an island of red sand, without any rocks, in lat. 16° 24′ S., and the long., estimated, 150° 24′.

The next day, the 29th, the large boat, which was in advance, signalled me a rock, level with the surface of the water, the points of a reef* being uncovered, and several miles in extent, enclosing a lake of bluish water, in lat. 16° 36′ S., longitude estimated at 148° 0′.

On the 31st, before starting for the coast of Australia, I held a survey on the provisions remaining in the three boats. There still remained 72 kilogrammes of biscuits, 20 litres of brandy, and 60 of wine; and I obtained a supply of water on the coast, in spite of the presence of some natives, and the difficulty of getting on shore.

On the 9th of September I reached the port of Albany, passing each night under shelter of an island or promontory, only obtaining water by communication with the natives, living on fish, roots, shellfish, &c.; in short, deriving sustenance from such things as we could obtain on those parts where we passed the night: I only used the biscuit when these supplies failed.

I expected to have found at Albany an English settlement, or at least a port where we might obtain water; but no trace of a vessel was to be seen, the springs were dried up, and, after a morning spent

* Most probably Willis Islands.

in useless search, as I could not obtain water somewhere, I decided, in spite of the wretched state to which we were all reduced, on departing for Coupang, in Timor. I did not disguise from myself the dangers to which we should be exposed from a want of provisions. At one time I was on the point of going to New Guinea, in search of a cargo of cocoa-nuts; but the want of charts of that part defeated this plan.

On the 10th, having succeeded in obtaining water on Possession Island, with the assistance of some natives, who appeared to have had communication with English sailors, from whom they had learned some words of English, I divided the biscuits among the boats' crews, (about 42 kilogrammes remaining,) giving about 100 grammes a day to each man, reckoning on a voyage of ten or twelve days.

I did all in my power to animate our men, who were weakened and fatigued by fifteen days' privation of every kind, and again put to sea, trusting in Providence, who had already guided me so happily, and had preserved us in the midst of our difficulties. I continued my voyage without misfortune till the 17th. The men, in spite of our small amount of food, continued in good health, when we met with a calm, which occasioned both surprise and fears.

On the 18th, notwithstanding my encouragement of the crew at their oars, the want of water obliged them to give it up; and on the 19th some of them showed symptoms of sinking; but I had resolved to keep on, and, as a last effort, to steer directly for the middle of the island of Timor, which I estimated at about thirty leagues distance. Setting the example myself, and taking advantage of the coolness of the night, we did not quit the oars from five o'clock in the evening till daybreak, having only twelve centelitres of water to satisfy our thirst during this long pull. At sunrise land appeared, about the distance of twenty leagues. This gave us all fresh courage, and renewed almost the failing strength of the men. Assisted by a light breeze, I succeeded towards evening in gaining an opening, which appeared to me to be a river, and from which a dense smoke seemed to ascend.

On the morning of the 21st, I was obliged to leave this point, not being able to obtain either provisions or water there, and it was only by sailing along the coast that I happened to procure water, on an inhabited point, and on the evening of the 22nd, having had no food since the morning, we happily reached the port of Coupang.

I immediately went to the Governor, M. Fraenkel, who placed at our disposal all the resources which the colony afforded. For three days the men rested, having abundance of provisions, and recruited their strength before undertaking a fresh voyage. By the advice of the Governor, I took passage, on the 25th, on board the packet for Batavia, which passes Coupang every month. Before departing, through his assistance, in the name of the French Government, a public sale of the three boats was effected, with the articles they contained.

During the three days we passed at Coupang, M. Fraenkel was in-

defatigable in treating us with the utmost kindness and generosity. Before departing, I addressed a letter of thanks to him, in my name and that of my men; and I feel great pleasure in acquainting you with these facts. I also left with him, in a brief account, some instructions, so that vessels sailing from this point to Sydney may learn in passing the fate of their comrades.

M. Fraenkel has furnished me with letters to the Governor of Sourabaya, where the packet stops several days, and to the Governor of Batavia, who will supply me with the necessary means of returning home.

I shall have the honour of informing you, when I arrive at this last place, the means that the Dutch government have placed at my disposal.

On the 25th of September I left the port of Coupang in the steamer *Padang;* the men being nearly all in good health. Some being slightly indisposed, were attended by the Dutch medical officer at Coupang.

In closing this account I am happy to be able to point out to your kind consideration the services rendered me by M. l'enseigne de vaisseau Augey-Dufresse, who commanded the large boat. This officer has not only done great service to our expedition by his observations when I had lost my instrument, but he also fully executed the commission I entrusted to him, of searching for water on the coast of Australia; and he also succeeded under the most difficult circumstances in sustaining the spirits of the men under him. I have found him not only an intrepid officer, but also the best adviser at a time when a commander needs the opinions of all.

The second mate, Leroy, has evinced, in spite of the greatest suffering, a courage above all praise; he steered the whale-boat, which he commanded, with the greatest success; and notwithstanding her slow progress, by his vigilance prevented separation.

I cannot conclude without noticing the devotion and extreme intelligence of the 2nd class sailor Jean Burel; he contributed materially to the safety of the large boat, and not a day passed without an occasion of trying his worth.

I may also mention the following names as having been especially courageous under several circumstances, and having by their happy influence over their comrades enabled me to command them without difficulty. Mouillard (Louis Auguste) and Lecompte (Joseph) sailors of 2nd class, and Rigues (Emille Pierre) sailor of 3rd class.

I add to this report a list of persons remaining on the 25th of August on the Mellish Reef, and also that of persons arrived with me at Timor. The health of all the crew was excellent; I brought with me the only man wounded in the shipwreck, sailor of 2nd class Dezen (Auguste), who had his shoulder-bone fractured by the wheel when the vessel struck.

[Mellish Reef,—lat. 17° 20′, long. 156° 20′ E.; 500 miles W.N.W.

of N.W. point of New Caledonia. The reefs and islets to be passed on the route to Cape Tribulation would be Youngs Reef, Alert Reef, with two sandy islets, the Coringa Islands and Holmes Reef before reaching the Barrier.—Ed.]

The Pacific Ocean Considered with Reference to the Wants of Seamen.

(Concluded from page 83.)

The foregoing are the principal observations we had to make concerning the winds on the N.W. coast of America.

Behring Strait.—As we have already observed, in Behring Strait during the summer the most general winds are from North and South. In that portion of the sea which is bounded on the North by the coast of this strait, on the South by the Aleutian Isles, on the East by the N.W. coast of America, and on the West by the coast of Kamstchatka, generally called in the chart Behring Sea, the winds are very variable, but those which mostly prevail are from the South and S.W.

In Lutké's voyage this is confirmed by a table and statement, including observations three times a day at the establishment at Houlouk (in the island of Ounalaschka), situated in lat. 53° 52′ N., and long. 166° 25′ W.; for one year they give the following results:—

North winds, 92 days.—N.N.W. 49.—N.W. 59.—W.N.W. 32.—West, 85.—W.S.W. 45.—S.W. 106.—S.S.W. 41.—South, 170.—S.S.E. 34.—S.E. 49.—E.S.E. 15.—East, 23.—E.N.E. 6.—N.E. 42. N.N.E. 21.

From the foregoing it is evident that the prevailing winds were South, 170 days; while those from S.W. lasted 106 days.

Passing to the West coast of the basin of the Pacific, and following it from North to South in the consideration of our subject, we may state as a general fact, that on the coast of Kamtschatka Westerly winds prevail during the winter, (that is, from the end of September to May,) and in the summer the prevailing winds are Easterly changing from N.E. to S.E.

In the winter the variable West winds are often attended by violent storms; but in the summer these winds generally bring fine weather. Those from the East, on the contrary, bring cloudy weather, accompanied by snow or rain. In the course of the summer the winds are generally light, and frequently interrupted by calms.

Notwithstanding, Capt. Krusenstern tells us that he does not consider that the Easterly winds prevail on the coast of Kamtschatka during the summer, and mentions those he met there in 1804 and 1805, the following observation on this subject appear conclusive. It is a table of the winds registered at Petropaulowski for the months of May,

June, July, and part of September, 1837, by Governor-General Schakof, being an extract from a more extended one that appears in the voyage of the frigate *Venus*, commanded by Adml. du Petit-Thouars.

According to this table, the winds blew on an average from North, 7 days (snow).—N.E. 7.—East, 28 (snow, rain, cloudy weather).—E.S.E. 3.—S.E. 30.—South, 8.—S.W. 7 (fine weather).—West, 5 (clear fine weather).—N.W. 22 (light, interrupted by calms).—N.N.W. 2.—Calms, 19 days.

Thus it appears that the East and S.E. winds were the most general, and their continuance during the time mentioned is evident from these observations. Cook, who was in these latitudes from May to November, mentions the same. In October he speaks of the Westerly winds as being the most general.

Sea of Okhotsk.—In the sea of Okhotsk, according to observations made at the establishment known by this name, during a period of eight years, (prepared by M. Tessan,)—in June, July, and August, the winds were in general from S.E. to East., and seldom from any other quarter. They were moderate winds, and generally accompanied either by rain or fog.

In September, towards sunset, the wind veers gradually from South to the Westward and N.W., and during the night freshens up from this quarter. About 10h. in the morning it moderates, and afterwards changes to South. During the whole of this month the sky is clear and the winds moderate.

From the middle of October to December, heavy storms and gales blow from East or S.E.; fine weather generally follows, when the wind passes to North and N.W.

From December and till the month of April, the wind frequently comes from North to N.E., with a fine sky.

In April and May the winds are moderate, blowing from North during the night, and from South in the day.

It appears also from this register, that at Okhotsk the prevailing winds are Easterly during the whole year, and that Westerly winds are very rare. These observations refer more particularly to the Northern portion of the sea of Okhotsk, of which our knowledge is very limited.

The Japanese Archipelago.—On the coast of Tartary, in the Japanese archipelago, and as far as the island of Formosa, two regular monsoons, of unequal duration, prevail throughout the year. The S.W. monsoon, varying to S.S.W. and South, begins in July and lasts till October. The N.E. monsoon, varying to N.N.E. and North, succeeds it about the end of October and terminates in June.

In the district of these monsoons, throughout all the coasts facing Westward, the rainy eason is that of the S.W. monsoon, while on the contrary it is the dry season on those coasts facing Easterly. When the N.E. monsoon prevails in its turn, the rainy season is set in on those coasts facing Eastward, while on those looking Westward the

dry season prevails. These monsoons in the Pacific Ocean reach from the coast out as far as about 140° East longitude.

Near Japan, about the end of August and September strong Westerly winds are sometimes found, and during the S.W. monsoon waterspouts are frequent in those parts.

The typhoons of the Pacific Ocean are found in the same parts, occurring from May to December. The district of these typhoons appears to be bounded on the North by a curved line passing through the middle of the island of Niphon and a little South of the island of Chusan, near the coast of China; on the South by a line drawn midway between Cape Tourane and Cape Padaran, through the North point of the island of Palawan, the North point of Mindanao, Pelew Island, and terminating South of the Caroline Archipelago. The eastern boundary of the same is about the meridian of long. 142° E., passing to the eastward of the Marianne Archipelago. These limits, however, are by no means constant, and are only given as comprising that space in which the typhoons are met with most commonly.

It has been observed that the typhoons are more violent when they take place in high latitudes. They are common about the time of the change of monsoon, namely in May, June, October, and November. The typhoon generally gives notice of its approach by certain signs, but there is no better method of ascertaining it, so as to take the necessary precautions against it, than the falling of the mercury in the barometer. It is therefore of the greatest importance to observe attentively the changes in the height of the mercury in this excellent instrument—one that very rarely deceives the mariner.

All the islands lying between the coast of China and the North coast of New Holland or Australia, as well as the seas which separate them, are subject to the periodical effects of the monsoons of the Indian Ocean. These monsoons blow from S.W. and S.E. from April to October, and from N.E. and N.W. from October to April.

North of the equator the S.W. monsoon brings the rainy season, and the N.E. monsoon the dry. South of the equator the S.E. monsoon brings the dry season and the N.W. monsoon the rainy one.

Too much precision, however, must not be assigned to the boundaries of the monsoons, neither must the period of their change be considered as certain. The general rule above given is subject to much modification, especially near the islands here referred to; and the period of the change of monsoon is also variable. According to localities, it will take place fifteen or twenty days sooner or later, and there is even one or two months of difference between the China Sea and the islands of the Pacific Ocean.

Island of Formosa.—The channel separating Formosa and China, called the Formosa Channel, lies N.E. and S.W. and appears to be a district of constant gales. During the S.W. monsoon it is visited by heavy rains and severe stormy weather. Between this island and the Philippines gales of wind occur in all seasons.

The Philippine Islands, the Island of Gilolo, and New Guinea form

the western limit of that portion of the Pacific Ocean which we are considering.

The monsoons of the Philippines are nearly the same as those of the China Sea. The S.W. monsoon sets in about the end of May on the West coast of these islands, and is in full force towards the month of July. The N.E. monsoon begins in October and lasts till April. The rains on the West coast prevail from June to the middle of September, during the S.W. monsoon, while on the eastern coast of these islands. during this season, the weather is remarkably fine. During the N.E. monsoon, on the contrary, fine weather prevails on the West coast while heavy rain is falling on the East coast. These rains sometimes last fifteen days without ceasing. The S.W. monsoon, like the N.E., does not blow invariably from those points. The following observations concerning these monsoons appear in an account of a voyage to Cape Horn, Peru, the Philippines, &c.

"On the North and East of the island of Luconia the North winds are sometimes very violent, especially from the beginning of December to the middle of February. These winds are accompanied by rain and stormy weather and cover the land with mist, which renders it difficult to make out and dangerous to approach. In February the northerly winds are generally followed by easterly and N.E. winds, which last till April, with settled fine weather."

According to the same navigator, the S.W. monsoon is subject to similar variations:—"In the Strait of San Bernardino, and especially on the East coast of the island of Luconia, the S.W. monsoon generally blows from between South and S.W., and is frequently interrupted by N.E. winds, varying to S.E. These last prevail over the former as the Island of Luconia is left in approaching the Marianne Islands."

"The monsoons," says M. Legentil, "do not change near the Philippines with such regularity as in the China Sea. Besides which the S.W. winds which prevail at sea are not met with at Manila. They generally blow at intervals of a fortnight or three weeks, and during their cessation other winds prevail, especially those from South and East. These intervals of gusts of wind when accompanied with rain are called *collas*.

"Off the Island of Luconia, from the end of June to the beginning of October, squalls of wind, known in the island by the name of *collas*, are occasionally met with. These are the signs of the storms called *tempestades* and *vaguios*. At sun-rise previous to the approach of the collas the weather is generally fine, the mountains being merely mantled with a slight mist like smoke. In the course of the morning this mist extends over the whole sky, covering it like a transparent veil, which does not quite keep off the sun's rays. At the same time it thickens round the mountains, where it soon forms into clouds. In the afternoon a heavy storm bursts forth, lasting an hour and a half or two hours at most; after which the sky again clears, and the night is extremely fine. These collas, however, sometimes last seven or eight hours, and even extend to fifteen. They generally begin with a squall of rain and wind, and always end in a storm, accompanied by

thunder, with heavy rain. The wind then blows strongly from S.W. to N.W., and is sometimes very strong. It takes place at the time of full moon, and always at the times of change. These squalls reach to a great distance, and it is only by them that the winds of the S.W. monsoon penetrate to the Marianne Isles."

The storms to which we have been alluding are known in the Philippines by the name of *tempestades*, a name given by the Spaniards, and the Indians call them *vaguios*. In these tempests, which are very severe, the wind blows from all points of the compass with equal violence. They occur chiefly towards the end of July or beginning of August.

In the Philippine Archipelago the change of monsoon is distinguished by storms, as it is in the Indian Ocean; and at Manilla those which take place in October about the time of full moon are especially formidable.

The heat in the Philippines is very great, but the constant dampness of the soil and the alternate land and sea breezes render it less oppressive than one would imagine. Indeed, with the N.E. wind, a certain degree of coolness is experienced. The hottest season is in the middle of March, at the time the East and S.E. winds set in. These winds last about two months, when they are succeeded by those from S.W., called *vendavales*. This transition occasions a great commotion in the atmosphere, producing those tempests above mentioned.

(To be continued.)

SAXBY'S SPHEROGRAPH.

Sir,—From an editorial note appended to my letter kindly inserted in the last *Nautical*, I request the favour of being allowed to explain that the "warmth" which you obligingly attribute to the importance of the subject was due to certain excitement inseparable from the position in which one necessarily finds himself when contending against established usage.

It is not easy to avoid dangers when traversing so intricate a channel as that through which the desire of compass improvement entices one. Does not the patience of the marine surveyor undergo a more severe trial while searching for reported but hidden shoals, than in mapping a whole coast? In like manner the attempt to separate fact from fallacy where each has been popularly clothed in the same garb is not without its difficulties. The slight and friendly admonition implied by your uplifted finger in the last *Nautical* surely is an indication that more able advocacy than mine is needed. However, allow me to repeat that the present system is destructive of life and property, and bears the bitter fruits of disappointment to him who practically confides in it. Your own opinion, Sir, that "another evil is

introduced by the use of compass correcting magnets" is a proof that unflinching plainness must be the tone of him who advocates a change. But I should be sorry for your readers to suppose that any allusions in my last to "authorities" implied more than disapproval of certain self-constituted authorities which affect injuriously the practical working of the compass at sea, and which authorities may be found in many a sea port. While I, however, explain thus far, I am desirous of declaring myself totally independent of other mens' dogmatics. We may see through different media,—then let us each fearlessly explain what we *do* see.

I offer, accordingly, to your readers a copy of what I have attached to my spherograph for correcting the compasses of steamers and iron ships, and trust that any errors therein may be publicly shown as a warning to sailors, and as an incentive to increased vigilance over their compasses. Let others who know more about it follow my example, and upon every occasion strive to uproot an evil the continued existence of which is not complimentary to British science.

I beg leave to propose the following as *Compass Axioms.*

1.—It ought to be understood that no precautions taken before leaving port can prevent changes in the magnetic condition of a ship.

2.—No positive reliance can therefore be placed upon any previous adjustment or "correcting card,"—

3.—It is, however, highly important that steamers and iron ships be carefully swung when in port, as often as convenient, and their magnetic condition ascertained, and a correcting card be furnished by a competent adjuster, as a general guide to a Commander.

4.—Every iron ship should be possessed of a means of adjustment, or re-adjustment, by magnets on Professor Airy's or any other sound principle; it is easily performed by a Commander from the printed or verbal instructions generally given by the compass corrector when he places correcting magnets on board ship.

5.—The Captain should always in person superintend the adjusting of his magnets, or the swinging of his ship.

6.—Nothing but an observation from a known heavenly body, as a means of correction, is to be depended on, and re-adjustment by it ought not to be neglected in case of long-continued thick weather.

7.—It is desirable to encourage and facilitate observation of such heavenly bodies by every possible means, and Saxby's patent spherograph is very simple, easy to be understood, and rapid in its use; moreover, it explains *principles*, and can never mislead.

8.—A good compass is as important an instrument on board ship as a good chronometer, and no sacrifice to appearance or position of it is too great to be yielded in order to give it fair play.

9.—Bearings can be more accurately taken with a "dumb card" than with a compass; for a dumb card being a fixture, and having no magnet, has no oscillations, nor can it be effected by local attraction; moreover, a dumb card may be used at any part of the ship, or aloft.

10.—No supposed accuracy of any means of compass correction can

justify neglect of the lead, when in soundings, in hazy weather or at night time.

The placing of correcting posts on headlands, &c., to give *true* bearings to passing vessels, is a *desideratum*. As all places are laid down on charts according to their true bearings it would be an improvement if the ordinary compass card would give true bearings without reduction; in such case the true bearings of headlands, &c., would be read off at sight, and the possibility of error diminished.

To meet the wishes of several able navigators, and to prevent confusion of lines, Saxby's spherographs are prepared for each distinct purpose, viz., compass correction, latitudes and time, great circle sailing, reducing stars to the meridian, correcting lunar distances, &c., all without calculation.

Thus, Sir, while I have the pleasure of adding my feeble testimony to the correctness of your remark as to the dangers attending the use of magnets, I define the limit beyond which *use* becomes *abuse* of them. We find a certain amount of ballast conducive to a ship's stability—shall we therefore fill her hold with pig iron, to the exclusion of profitable cargo?

I make no allusion whatever to the Royal Navy. Knowing so little of the present discipline and individual duties, I am content to cherish the respect for the whole service which has grown with my age, and which years of friendly intercourse with many of its active and talented members have strengthened into a feeling of unfeigned admiration.

In noticing Captain Robertson's remarks on forming a table in which variation and deviation were proposed to be combined, I ought perhaps to have called more prominent attention to his expression "when first getting out to sea." Now it may not be very apparent to all your readers that precisely at the time when the greatest dangers of a voyage have to be encountered (from compass changes, the channel coasts, &c.,) a merchant Captain, in a ship badly manned as compared with a man-of-war, has his attention distracted by the questions and whims and unavoidable confusion arising from perhaps five hundred passengers. It is then that Commanders of iron ships, or with iron cargo, feel all the tortures of the compass difficulties; and it is then only, I presume, that Captain Robertson would wish such a temporary aid as he proposed. He is a very able navigator and sails an iron ship.

I am sorry to intrude myself upon your columns, but shall ever be desirous of proving that your indulgence has not been misplaced. Retirement is much more congenial to my taste, and, I am sorry to add, to my health, than publicity. I cannot, however, lose sight of the main attraction of my life, and shall continue to appreciate a ship and her appointments as the very mine from which the wealth of England is extracted, and as the safeguard of her shores, which the British Navy has so proudly made her.

I have, &c.,
S. M. SAXBY.

Voyage of the Simla.

The following is an abstract of the *Simla's* Australian voyage:—

Southampton to Sydney.

		d.	h.	m.
Left Southampton	12th Nov., 3h. p.m.			
Arrived at St. Vincent	20th Nov., 2h. p.m.	7	23	0
Sailed from St. Vincent	25th Nov., 7h. p.m. stopped	5	5	0
Arrived at Port Phillip Heads	6th Jan., 6h. p.m.	41	23	0
Sailed from Port Phillip Heads	8th Jan., 6h. a.m. stopped	1	12	0
Arrived at Sydney	10th Jan., 1h. p.m.	2	7	0
Whole voyage, including stoppages		58	22	0

Sydney to Suez.

		d.	h.	m.
Left Sydney	11th Feb., 8h. 40m. p.m.			
Arrived at Melbourne	14th Feb., 10h. 30m. a.m.	2	13	50
Left Melbourne	15th Feb., 9h. 5m. a.m. stopped	0	22	35
Arrived at King George Sound	21st Feb., noon	6	2	55
Left King George Sound	22nd Feb., 10h. 20m. a.m., stopped	0	22	20
Arrived at Point de Galle	9th Mar., 6h. p.m.	15	7	40
Left Point de Galle	10th Mar., 9h. 45m. p.m., stopped	1	3	45
Arrived at Aden	20th Mar., 6h. 30m. a.m.	9	8	45
Left Aden	20th Mar., 6h. 30m. p.m., stopped	0	12	0
Arrived at Suez	26th Mar., 9h. 30m. a.m.	5	15	0
Whole voyage, including stoppages		42	12	50

Stoppages:—	d.	h.	m.			
Melbourne	0	22	35			
King George Sound	0	22	20			
Galle	1	3	45			
Aden	0	12	0			
				3	12	40
Time on passage				39	0	10

The *Simla* would have made a quicker passage than she did if her bottom had not been foul. As soon as she reached Suez, she turned round almost immediately and started for Australia, and it is expected that she will make a capital passage out, and reach her destination within the contract time. When she gets to Sydney again she will have her bottom cleaned. The temporary dock made for the *Oneida* there was not large enough for the *Simla*. A patent slip is making at Sydney for cleaning and repairing the large mail steamers.

Captain Cooper, the commander of the *Simla*, won golden opinions from the passengers, and they presented him with an address of satisfaction at Suez. One of the passengers was Mr. Westgarth, a colonial celebrity. Many of the passengers went to England *viâ* Marseilles, from Malta. Mr. Westgarth and about thirty others came on to Southampton. The overland route is likely to be a favourite one after a short time. At present the colonists have a dread of crossing the Egyptian desert.

The *Simla* brought home only a small quantity of gold, because a large number of favourite clipper ships were about to leave Australia for England at the same time as she left, and because also of the recent departure of the *Oneida*. The *European*, which would leave Sydney and Melbourne a month after the *Simla*, with the overland mail, would, it was expected, bring a large quantity of gold. When the *Simla* left Melbourne, three nuggets had been found, each worth about £1,600 sterling. Trade in Victoria was quiet. It was expected that Sir Henry Barkly, the new Governor of that colony, would not have very many or very great difficulties to contend with.

The Australian passengers were delighted with the *Jura*, which brought them to Southampton from Alexandria. The *Jura*, as soon as she landed her passengers, mails, and specie at Southampton, started for Liverpool. The mails consisted of 139 boxes and 17 bags of letters and papers, which were despatched to London by a special train.

This is the first time in which news has been received from Melbourne, in Australia, in 48 days; and when the electric telegraph is laid down in the Red Sea, on the line to India, and a telegraphic communication is thereby established with Aden, we shall get news from Melbourne in 34 days. The *Simla* left Melbourne a day after her time, and reached King George Sound a day before her time. She lost a day in reaching Point de Galle, but made it up on reaching Suez.

When the Peninsular and Oriental Company had the contract to convey the Australian mails *viâ* Singapore, they were allowed fifty-three days for the voyage between Melbourne and Suez, but the *Simla* has done it by way of Galle in thirty-nine days. This magnificent ship is 2,450 tons and 600 horse-power. She has triumphantly demonstrated the capacity of the screw steamer for rapidly crossing the Indian Ocean. The *Simla* will no doubt take on the immense mail that has been accumulated at Suez, and reach Melbourne with it by the 5th of next month.

The European and Australian Company have done this good service—they have shown the precise kind of ship that should be employed to carry the Australian mails, and how to shorten the time hitherto consumed between England and the colonies of Australia by a fortnight. There are a number of screw steamers now afloat quite equal to the *Simla* in point of speed and strength, and more, of course, can easily be built. The commander of the *Simla* is Capt. Cooper. His name deserves record as the pioneer of what is to be hoped will be a new era in Australian steam navigation.

The drawback to the European and Australian Company's admirable performance of their engagement by means of the *Simla* is the non-arrival of the *Oneida*. She left Melbourne eighteen days before the *Simla*, and since she left King George Sound, which she did at her proper time, she has not been heard of. Her commander, Capt. Hyde, is a very able navigator, and he had the greatest confidence in his ship when he left England. If she has broken down, and is

making for the Mauritius, she is twanty-four days out at least, since we have news from that place up to the 1st ult. If she is making direct for Ceylon, she is at least thirty-two days out, the distance of Ceylon from King George Sound being 3,300 miles. Being a screw, however, she is not so helpless in the Indian Ocean as a broken-down paddle-wheel steamer would be. If the *Oneida* makes for the nearest port belonging to England, Singapore is nearer than the Mauritius or Point de Galle, its distance being only 2,700 miles from King George Sound.

In a few days we shall have a fortnight's later news from Singapore, and a week's later news from Galle, and it is to be hoped that by that time the *Oneida* will turn up somewhere. If she arrived at Suez soon after the *Simla*, which is possible, there would be no steamer at Alexandria to bring home her mails, as both the *Etna* and *Jura* had left that port. An Indian mail steamer will be leaving Alexandria, however, about this day, which could take on at least the Marseilles portion of her mails to Malta, and from thence it could be easily taken to Marseilles.—*Daily News.*

[The "later news" above alluded to has been received, but no intelligence of the *Oneida*.—ED.]

THE "TYNE" AND THE "MADRID."

The following respecting the former of these vessels appears in the half yearly Report of the Directors:—

"It is a matter of great annoyance to the directors to be compelled so soon after the loss of the *Tay* to advert to another serious disaster. The stranding of the *Tyne*, as the proprietors are aware, took place at a time when her voyage was so nearly completed that such a calamity could hardly have been looked for; but the subsequent recovery of this vessel has rendered the occurrence far less injurious than it would otherwise have been, and it is believed that the whole of the expences consequent thereon, including, of course, the cost of repairs, will be fully covered by the sum appropriated to insurance for the first half of the current year, viz., £22,500. It will be satisfactory to the shareholders to learn, that though the ship continued so long upon the rocks, her form remains unaltered, and that when repaired, she will be as good and serviceable a vessel as she was before she grounded. There is every reason to expect she will be ready to resume service in the course of October next."

In reference to the *Madrid*, we have shown in another part of this number that her loss was not (as reported) the effect of the Admiralty chart, but might have been prevented if that chart (or rather plan) had been on board of her, as it is indeed in her Majesty's ships. The Directors of the Company to which the *Madrid* belonged appear to view the real cause of her loss in the same light as we do, having

(we understand) dismissed her captain; and thus, to use a homely phrase, placed the saddle on the right horse; confirming thereby all we have said, and publishing their own views of the subject. Had not this been done, while the commanders of the *Tay* and the *Tyne* were dismissed, the injustice of merely admonishing the commander of the *Madrid* would have been intolerable. So much then for the *report* on her loss! Verily the directors of our steamboat companies appear far more capable of managing these matters than those who composed the *Court of Inquiry* at Southampton!

Langstone Harbour.

Resuming our remarks on Langstone, which, as disinterested spectators, we yet hope to see one day rising into a magnificent and spacious harbour, we left it in the opinion that it would one day become an outport of London, and the report continues, in reference to that great advantage, "to say nothing here of the increased security to the scheme of the National Defences consequent upon the adoption of this magnificent project of a new harbour, new docks, and a new railway at Langstone. That we conceive must be sufficiently manifest from the circumstance of it affording shelter to our merchant traffic in the Channel at a spot in immediate proximity to Spithead, and in the closest contiguity to the great naval depot at Portsmouth. Neither do we say anything at present as to the prospects of the growth of the new seaport—remembering, as the public cannot fail to do, the suggestive facts bearing upon this point recorded in the history of the rise of Liverpool. It cannot be forgotten, for example, that though the Wet Docks at Liverpool, which were the first ever constructed in the United Kingdom, were projected as recently as 1708—the dock dues at that port, which at the beginning of the last century were only £800, had risen in 1756 to £2,200, that in 1801 they had increased to £28,000, and that in 1850 they were actually £230,000. Bearing these encouraging particulars in mind, it is gratifying to learn that the most active measures are already being taken to carry out the projected scheme of the Docks in the Harbour of Langstone. As far back as 1823, an Act of Parliament was obtained to authorise the building of additional docks at that place, on the West side of Hayling Bridge. It now is intended that that long-dormant undertaking shall be realized, and that besides considerably deepening and enlarging the entrance to the harbour, the promoters of the enterprise shall connect these additional docks with the South-Coast Railway by a tramway—this tramway meeting the railway somewhere about the Havant Station. For the improvement of the mouth of the harbour the sanction of the Lords of the Admiralty has been obtained, and for the other alterations there has lately been secured another Act of Parliament, so that the enterprise may be considered as, indeed, already in the progress of realisation.

"Langstone, we repeat, when the new docks are finished, must be regarded as literally the out-port of London. It has been observed that the two places are distant from each other only sixty-six miles, and that these sixty-six miles may be abbreviated by a railway so as to command the most rapid intercommunication. Sixty-six miles constitute the actual distance from London to Langstone, but thirty-two miles alone will require the construction of a railroad—for a branch of the South-Western Railway, it must be remembered, is already completed as far as Godalming. So that all now needed in this direction is the continuance of that branch line from Godalming to Langstone. With admirable promptitude the Portsmouth Railway Company have already announced their determination to undertake the construction of this new railroad at a cost of £400,000. A single line is spoken of in their prospectus—but for our part, we cannot but be most sanguine that a double line will ultimately be laid down to Havant—so strongly are we impressed with the grandeur of this noble scheme of an out-port to London on the South coast of England, in that hitherto neglected harbour of Langstone, which must ultimately prove the Golden Horn to the Hellespont of the British Channel."

And thus with our best wishes for its success we leave Langstone for the present.

Nautical Notices.

The River Mutlah.—The Court of Directors of the East India Company has given notice that a Light-Vessel was temporarily stationed at the entrance of the River Mutlah, in January last, in lat. 21° 6′ N,, long. 88° 48′ E. nearly, in 10 fathoms low water spring tides, about 7 miles South-East of the outer or Bulcherry Reef Buoy.

This Light-vessel will show a Red Flag by day, and a clear White Light by night, from sunset to sunrise, and in addition to this, she will fire a rocket at 8h. p.m., at midnight, and at 4h. a.m., from the 15th of March until the 16th of October, while she is at her station.

The notice adds, "For the present a pilot brig will show the light." What does this mean?—Query, Is the Light-vessel a pilot brig? If so, why not say so?

Revolving Light on Cape Moreton, Australia.—The Government of New South Wales has given notice of a Revolving Light to be established on or about the 1st day of March last, on Cape Moreton, at the North end of Moreton Island, East coast of Australia.

The light will be visible during fifteen seconds of every minute all round the horizon, at a height of 385 feet above the mean level of the sea, and should be seen from the deck of a ship distant 26 miles.

The tower is of white stone, 67 feet high, including the lantern; it

stands on the summit of the Cape, in lat. 27° 2′ 24″ S., long. 153° 28′ 56″ E. of Greenwich.

Masters of ships bound to Moreton Bay will never mistake Point Lookout on Stradbroke Island for Cape Moreton, by remembering that there is not a building of any description on the coast from Port Macquarie to Cape Moreton, nearly 300 miles distant.

[Variation of the compass, 9° 30′ E. in 1856; increasing about 2′ annually.]

THE VARNE: *New Red Buoy.*—Angles for the Varne Red Nun Beacon Buoy, in twelve fathoms, near the shoalest water on the N.W. side of that shoal:—

Cape Grisnez Lighthouse, 112° 25′, South Foreland High Lighthouse.
South Foreland High Light, 10° 31′, Dover Castle.
Dover Castle, 38° 53′, Folkstone Church.
Paddlesworth Trees in line with a white hotel at the East end of Folkstone Cliff, N.b.W.¼ W.
Dungeness Lighthouse, W.¼ N., 14 miles:
Cape Grisnez Lighthouse, S.E.b.S., 11¼ miles.

TESTIMONIALS—*by the Board of Trade.*

The Dutch barque *Catherina en Theresia*, on her voyage from Amsterdam to Batavia, when in lat. 32° 10′ N., long. 17° 40′ W., on the 30th ult., fell in with the British barque *Midlothian*, of London, Robert Phillips, Master, bound to the West coast of South America, in a sinking state; the master and crew were taken on board the Dutch ship, treated with great kindness, and landed at Santa Cruz, Tenerife. The Consul having reported the circumstances to the Board of Trade, a very handsome three feet telescope has been presented to Capt. Hartsman with the following inscription:—"Presented by the British Government to W. L. Hartsman, Commander of the Dutch barque *Catherina en Theresia*, for the assistance generously rendered by him to the master and crew of the British barque, *Midlothian*, on the 30th of January, 1857."

In the year 1856—1809 Masters went up for examination: 1201 passed, 608 failed.

3962 Mates went up for Certificates; 2831 passed, 1131 failed.

TO CORRESPONDENTS.

The Aurora Islands in our next.

ERRATA.

Page 2 line 4, *for* So secure was the shelter in this bay, *read* Although an open bay.
„ 10 „ 13, *for* 180 miles, *read* about 350 miles.
„ 197 „ 22, *for* Queen Radamah, *read* Queen Ranavalomanjaka.
„ „ „ 44, *for* Queen Radamah, *read* the Queen.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JUNE, 1857.

The Aurora Isles,—*South Atlantic.*

There is an islet somewhere among the Chusan Group called "Just in the way," the existence of which is consequently never doubted; but the Aurora Isles being just out of the way, and consequently not so constantly seen, have been pronounced not to exist. Their position is a few degrees East of the Falkland Islands, or about midway between those islands and South Georgia, and certainly much out of the way of ships. It is said they have been searched for without success, but it is not improbable that this statement may apply to a rock reported by a Spanish commander, which could not be found by the *Atrevida*, one of Malespina's vessels; or it may apply to the fabulous Isle Grande to the Northward, and hence the origin of their dismissal from some charts.

Thus their out of the way position has occasioned their being neglected by navigators, for we can find no account of them from any but the Spaniards. And as they appear to have been all but lost to chart makers, we have referred to Malespina for what he says of them, having received a statement from Capt. Wyeth, of the barque *Helen Baird*, that he had fallen in with them on his voyage home from the Pacific in December last.

The following is all that Malespina says of them, from which we can obtain no opinion of their relative size.

Aurora Isles.

We have no account of these islands having been seen before the year 1762, when they were found by the *Aurora* frigate, and called after her. In 1790 they were also seen by the *Princesa*, belonging the Philippine Island Company, the captain of which ship showed us his journal and gave us some account of their position.

In 1794 the corvette *Atrevida*, from the 21st to the 22nd of January, stood between and about them, making the necessary observations for their position with chronometers, and obtained their difference of longitude from the Maluinas. They consist of three islands, nearly on the same meridian: the middle one is rather, low, and the others may be seen at the distance of nine leagues.

Latitude of the Southernmost	53° 15′ 22″ S.
Longitude West of Cadiz	41 40 0
Latitude of the Second or low one	53 2 40
Longitude of Ditto	41 38 0
Latitude of the Third, which, until now, was unknown, and on which account we call it Isla Nueva	52 37 24
Longitude	41 26 0

The captain of the *Princesa* states that to the East and S.E. of the Southernmost Isle and eleven miles from it there is a rock; but the *Atrevida* took great pains to find it, without succeeding, and only saw some small pieces of ice, which at a distance had the appearance of rocks.—*Espinosa's Memoirs*, vol. i.

We now add the extract relating to them from the log of the barque *Helen Baird*, having also the chart of her track before us.

Barque "Helen Baird," from Sydney to London,—H. Wyeth, Master.

REMARKS.

Friday, 5th of December, 1856.

P.M.—Light winds and cloudy, with mild atmosphere. Midnight, moderate breeze and foggy.

At 4h. a.m. the chief mate called and reported to me there were icebergs to leeward (Eastward). On going on deck, immediately pronounced them to be the Aurora Isles, covered with show. These two in sight, a large one and a smaller one, bore East TRUE, distant about eighteen miles. At 6h. a.m. more clear, saw distinctly two others, more to the Northward of these, about N.E. from the ship, from the mizen cross-tree: saw plainly five in number. 8h. a.m. the North island bore East per compass, distant about twelve miles. Could most distinctly see the land at the N.W. and North parts clear of snow; but South end covered, as likewise the top, it being quite flat with snow. The South end of the North island is high, and slopes away to the Northward like a gunner's quoin. Am perfectly

satisfied of the existence of these islands. In my (Laurie's) chart they are laid down as—Aurora Isles of the Spanish charts, but do not exist—but they most decidedly do exist, and the position in Laurie's chart is correct, agreeing with my position at noon.

The log then contains the result of the meridian altitude and the observations for chronometer, "which places (continues the log) the North island in lat. 52° 40′ S., long. 48° 22′ W., and I allow these islands to be about twenty or twenty-five miles in extent North and South."

The Spanish account seems to give a difference of lat. of 38 miles between them, and the North Island differs in position 2½ miles in latitude and 39′ of longitude to the Eastward of the *Helen Baird*. But the *Atrevida's* position is perhaps to be preferred, making the North island in lat. 52° 37′ 24″ S., and long. 47° 43′ West of Greenwich; considering also that the *Atrevida* stood between them with the view of determining their positions, we can see no good reason for doubting her account of them, especially when their existence is so fairly corroborated by the *Helen Baird*, which vessel appears by her track to have been obliged to alter her course to avoid them. Indeed, if we had any doubts they would give way on seeing the track of the *Atrevida*, as it is laid down on the Spanish charts, passing and repassing between them. We therefore consider that Capt. Wyeth has given a wholesome reminder to our hydrographers not to discard from the chart, islands which may be the means of wreck, by not being laid down on it.

The Atlantic Electric Cable.

The year of our Lord 1857 will add another wonder to the list of those which the ingenuity of man has found in the garden of science. But differing from others which were boasted by the ancients, this, like those preceding it in modern times, will be eminently serviceable to him. Thanks to the virtues of that common juice of a tree in the East, known as gutta percha, difficulties are overcome which appeared insurmountable, and with its invaluable assistance an Electric Cable is to span the Atlantic, by which the Old World is to be placed in friendly converse with the New. Europe and America will be able to enter into friendly chat about anything or everything, and words will fly across the ocean with lightning's speed, tending we trust to cement that friendship which is so happily established between us.

The year that has last expired will be remarkable as having seen collected together at one friendly and "festive scene," the representatives and friends of electric science from all parts of the world. The principal object of the assemblage was to plant the germs of that undertaking which has readily found root here, and promises to yield

abundantly in the time of harvest. Professor Morse came to us, made known his purpose, showed by the maritime researches of the *Arctic* the facility of achieving it, proved to satisfaction the power of electricity in overcoming the obstacle of distance, and returned successful to America. From that period the fact of the establishment of telegraphic communication with America might be considered a *fait accomplis*. The mere distance of perhaps 2,000 miles was looked on as nothing. True this was all ocean. But what then. Neptune's dominions had been already successfully invaded, although not to a twentieth part of this extent, and there was no objection. The method of execution was perfect; the means of carrying into effect were at hand, and the thing might in reality be considered as done.

But let us introduce to the reader the little *Arctic*, which has been the first to pioneer the way, the first vessel that has successfully traced out with her lead the bed of the ocean between Newfoundland and Valentia on the arc of the great circle, the high road adopted in navigation now that auxiliary steam has been so successfully employed. It is something new in navigation to have soundings laid down for about 1700 miles of ocean, which, till American sounding showed the contrary, was deemed unfathomable.

Some clearsighted observer of the Sister Isle wrote thus of the *Arctic* in reference to

Electric Communication with America.—The following interesting statement is extracted from the *Cork Constitution* of Saturday:—

"Lying at anchor off Queenstown for the last few days may have been observed a small, unsightly, ill-painted, rusty-bottomed, screw-steamer, without one point of attraction about her except the stars and stripes fluttering in the breeze. Yet that boat and some of the officers she contains have been the world's wonder for a season, and have just now concluded a task which is the forerunner of an event more wonderful still.

"The *Arctic* was the vessel that was sent to rescue Dr. Kane, who had previously been sent to rescue Franklin. She was successful, and brought home Dr. Kane and his crew, who had been obliged to abandon his ship and his search. She was then a lightship on the American coast. She is now the bearer of Lieut. Strain, of Darien notoriety, and Capt. Berriman, who has before, and now again, crossed from Newfoundland to take soundings of the whole Atlantic from St. John's to Valentia, with the view to ascertain the probable success with which a telegraphic cable may be laid down between these points. The result is satisfactory. For some fifty or sixty miles from St. John's, and again on this side, is a bank varying from 25 to 120 fathoms. Between these there is a plateau nearly level, the bottom soft, composed of shells so fine that only the microscope can discover them, each shell perfect in its minute beauty, proving the absence of currents at the bottom, and, with due deference to Stephenson and others, the want of that vast pressure which was to be so dreaded, and exhibiting at every point not only a capacity, but the most perfect capacity, for the use for which it is required.

The whole apparatus for arriving at these facts is most perfect. Steam-power, separate from that of the ship, works the axle from which the sounding-line is payed out. Soundings have been taken to the depth of 27,000 fathoms. By a neat contrivance each sounding shows not only the depth, but the nature of the bottom, which is brought up in five quills. and the temperature of the water, the latter being given by the expansion or contraction of a metallic spiral riband placed round a centre pin, fixed at the top, and attached at bottom to a needle and indicator, the latter remaining fixed after the first has ceased to act, showing the exact variation between the surface and the bottom. Most careful drawings have been made by Mr. Van Den Berg (to whom has been assigned the special post of draughtsman) of the soundings, showing a profile of the bottom of the sea with the greatest accuracy.

"There can be no doubt that telegraphic communications between Ireland and St. John's, a distance of 1,640 geographical miles, may be regarded as a certainty. It is in the hands of a small American company; but, though small, if its members possess but a tithe of the energy of their representative, Mr. C. W. Field, who is also here making every inquiry, it will be enough to overcome every difficulty. Capt. Berriman laughs at laying the cable. He asks but a ship large enough, and he will undertake to do it at ten miles an hour right across. The company have already obtained the sole grant for erecting telegraphs through the whole of Newfoundland, and have already some 1,700 miles at work. or will have in a few days, which is in connection with the American lines.

"The difficulties and trials of temper in taking these soundings have been tremendous. Repeatedly after paying out tens of thousands of fathoms of line, and getting it all up within some sixty or eighty, it was snapped, and all had to be done again. Six and eight hours have been occupied in getting one sounding only, and these have been made nearly every half degree the whole way across. From the captain to the cabin-boy, each has given his willing aid. No trouble was thought too much—no time too long: each appeared to feel the honour of his nation at stake, and proud in every way to advance the object in view. They have all done their work well. Nature has granted all we could ask; art will soon do its part, while nature, science, and art, worked out by man's hand, will produce one grand whole to benefit mankind."

Now after this to doubt that the cable will be laid, is to ignore what has been done already in this way.

The whole project of the electric cable is amply set forth in the following general view of the subject from the pen of Mr. Cyrus Field, the Vice-President of the new company formed to carry it out.

Fifteen years have barely elapsed since the success of the first line of electric telegraph demonstrated the immense practical importance of that invention.

The adoption of it by almost every civilised nation already gives

promise of even greater things than it has yet accomplished in the furtherance of social and commercial intercourse.

It is, however, only within the last five years that practical men have wrought out successfully the application of the same principles to the still later problem of submarine telegraphy.

Surrounded by every species of difficulty which besets a new and untried path, Mr. Brett, with the aid of a few associates, achieved in 1851 his first success in the electric union of France and England.

The result of this decisive experiment, favourable alike in its national, commercial, social, and, though last not least, in its remunerative aspects, has been such as to disarm all prejudice, and to encourage a desire for the utmost possible extension of similar undertakings.

England is now united by six distinct submarine cables to adjacent coasts, and other countries have not been slow to catch her spirit of enterprise in this important application of science to the wants of man.

America alone, the greatest and most progressive of all the nations with whom we have intercourse, has hitherto been debarred from participating with us in the advantages of electric intercommunication, while the daily increasing requirements of the two nations render such an institution more than ever necessary to the well-being of both.

The genius of science and the spirit of commerce alike demand that the obstacles of geographical position and distance alone shall no longer prevent the accomplishment of such an union.

Under the influence of these considerations, the subject of establishing a telegraph to America has been largely and anxiously studied on both sides of the Atlantic.

The careful and elaborate investigations of Lieut. Maury, of the U.S. Navy, into the physical geography of the sea, threw a new light upon what had been supposed to constitute the chief engineering difficulties of such an enterprise. His clear and accurate definition of the currents of the ocean, and the soundings of the Atlantic deeps,—imperfectly known previous to his researches,—have developed an extraordinary, and, to speak with reverence, a providential fact. The two conditions to be chiefly desired for the successful submersion of a telegraphic cable are, the absence of currents interfering with the steady descent of the line; and a level bottom with a stratum likely to remain undisturbed, and adapted for its subsequent security and preservation. These conditions, though first elucidated for philosophic objects other than those of telegraphic science, have been shown to exist in a remarkable degree throughout a plain bed of ocean extending between the coasts of Ireland and Newfoundland; that possesses the additional advantage of being the shortest possible route between the shores of the Old and New World. So marked, indeed, are those features, and so favourable is their bearing on the great project, that they seemed to the discoverer at the time so providential, as to justify his designation of it as the Telegraph-Plateau.

The mighty current which takes its rise in the Gulf of Mexico, and flows northward as far as the banks of Newfoundland, washes the

eastern shores of the United States with great force; and the precipitous hollows in the bed of its course would render a route to the south of the great banks impracticable for telegraphic purposes. Immediately to the north of these banks such abysses cease to exist. Stretching away in a direct line from St. John's, Newfoundland, to the bay of Valentia, on the Irish coast, lies the vast sub-oceanic plain above referred to, situated in the line of nearly absolute rest of the waters of the Atlantic. The immediate bed of these waters has been shown, by the specimens obtained on sounding, to consist throughout of the most minute microscopic shells, which, from their delicate organism and the perfect state in which they are found, prove the utter absence of all motion in the water surrounding them. To use the words of the highest authority on the subject,*—"this plateau is not too deep for the cable to sink down and rest upon, and yet not so shallow that currents or icebergs or any abrading force can derange the wire after it is once lodged upon it."

In April, 1854, a company was incorporated by act of the Colonial Legislature of Newfoundland for the purpose of establishing a line of telegraphic communication between America and Europe. That Government evinced the warmest interest in the undertaking, and in order to mark substantially their sense of its importance, and their desire to give to it all the aid and encouragement in their power, they conferred upon it, in addition to important privileges of grants of land and subsidy, the sole and exclusive right of landing a telegraphic line on the shores within their jurisdiction, comprising, in addition to those of Newfoundland, the whole Atlantic coast of Labrador from the entrance of Hudson Strait to the Strait of Belle Isle. This act of the Colonial Legislature was subsequently ratified and confirmed by her Majesty's Government at home. The company also obtained in May, 1854, an exclusive charter from the government of Prince Edward Island, and afterwards from the State of Maine, and a charter for telegraphic operations in Canada.

The exclusive rights absolutely necessary for the encouragement of an undertaking of this nature having thus been secured along the only seaboard eligible for the western terminus of an European and American cable, the company in the first instance commenced operations by proceeding to connect St. John's, Newfoundland, with the widely ramified telegraph system of the British North American provinces and the United States. This has been recently completed by the submersion of two cables in connection with their land lines: one, eighty-five miles in length, under the waters of the Gulf of St. Lawrence, from Cape Ray Cove, Newfoundland, to Ashpee Bay, Cape Breton; the other, of thirteen miles, across the Straits of Northumberland, connecting Prince Edward Island with New Brunswick. Electric communication is thus established direct from Newfoundland to all the British American colonies and the United States.

On the Irish side, lines of telegraph have been for some time in

* Maury's Physical Geography of the Sea, p. 256.

operation throughout the country, and are connected with England and the continent by submarine cables. The only remaining link in this electric chain, required to connect the two hemispheres by telegraph, is the Atlantic cable.

The Atlantic Telegraph Company* being desirous that this great undertaking should be established on a broad and national basis uniting the interests of the telegraph world on both sides of the Atlantic, have entered into alliance with persons of importance and influence in the telegraphic affairs of Great Britain: and in order at the same time to obtain the fullest possible information before entering upon the crowning effort of their labours, they have endeavoured to concentrate upon the various departments of the undertaking the energies of men of the highest acknowledged standing in their profession, and of others eminently fitted for the work, who were known to have devoted much time and attention to the subject.

The route between the two shores had already been minutely surveyed by Lieut. Maury, whose name alone amongst nautical men is a sufficient guarantee for the accuracy of the results obtained, and whose personal counsel and co-operation the promoters are authorised to say will be given to the undertaking in bringing it to completion. The data obtained by him have received the most ample corroboration in the recent special sonndings taken by order of the United States Government, at the instance of the Atlantic Telegraph Company, by Lieutenant Berryman, U.S.S. *Arctic*.

It is with the highest satisfaction that the company are able to refer to the aid which her Majesty's Government are inclined to give to their labours. A line of soundings taken at spots intermediate betweeen those effected by Lieutenant Berryman, have been ordered by the Lords of the Admiralty to be made forthwith; and the readiness and cordiality with which every suggestion on the part of the promoters has been met by their Lordships, and by those at the head of the several departments, call for the warmest thanks of all concerned in the undertaking.

In the engineering department advantage will again be taken of Lieut. Maury's invaluable advice in connection with the machinery employed in paying out the cable, and of the co-operation of others who have carried out the submersion of the submarine lines already laid. The soundings of the ocean along the plateau, which gradually increase from 1000 fathoms to 2070 fathoms at the middle and deepest part, present no obstacle in depositing a cable with regularity along a soft and almost level plain of such a nature,—and the question of submerging a cable in depths almost equal, and under less favourable conditions, has been already surmounted without difficulty.

In order to determine various points connected with the electrical department of the undertaking, a continued investigation of all the phenomena connected with the use of long submarine circuits has been carried on during the last two years; and Professor Morse, who

* Called the New York, Newfoundland, and London Telegraph Company.

has recently visited England, has, for many days consecutively, gone into a rigid series of demonstrations on this subject in connection with those gentlemen who have devoted so much energy and patience to this department of the work. He declares his conviction that the problem is conclusively solved, and that the attainment of full commercial success is no longer doubtful.

It may be mentioned here, that the possibility of readily and rapidly transmitting telegraphic signals beyond a certain distance by submarine wires, had been thrown into some doubt by the discovery of certain phenomena of induction and retardation, described by Professor Faraday.

In the year 1854, at the instance of Mr. Brett, Mr. Wildman Whitehouse first took up the subject, of the effects of induction in long submarine conductors, in its relation to practical telegraphy, by commencing a series of preliminary experiments upon a cable containing 660 miles of submarine wire. In the following year, when the great project of transatlantic communication came more prominently into view, these experiments were continued more fully on 1125 miles of similar wire, the results being obtained and recorded with the utmost care and accuracy, by means of apparatus contrived for the purpose, and new both in character and principle. Several facts of the highest importance to electrical science and of the most encouraging nature as regards the undertaking were thus determined; and in a still more extended series of experiments this year on 1020 miles, conducted conjointly by Mr. Whitehouse and Mr. Bright, Engineer to the Magnetic Telegraph Company, these two gentlemen have been enabled to realise and amplify every previous encouraging result, and at the same time to perfect instruments suitable for practical telegraphic use and capable of working through almost unlimited lengths of submarine wire. The size of the conducting wire required for such distant operations has formed the subject of special inquiry with these gentlemen. They have finally established a claim to the foremost position in the scientific department of the undertaking, by practically demonstrating to Professor Morse and others, on an unbroken length of over 2000 miles of subterranean wire, the fact of telegraphic operations carried on with an amount of accuracy and at a speed which determines at once the certainty of full commercial success.

Nothing can be more satisfactory than the result of those experimental demonstrations, which have been verified by Professor Morse, proving, as they do—First, that telegraphic signals can be transmitted without difficulty through the required distance; Secondly, that a large conducting wire is not required for the purpose; and Thirdly, that the communication can be effected at a thoroughly satisfactory speed.

All the points having a direct practical bearing on any part of the undertaking have thus been subjected to a close and rigid scrutiny; the result of this examination proving to be in every respect of the most favourable character, it remained only that those possessing the required power should take the initiative.

The Atlantic Telegraph Company possessing, in virtue of their charter, all the necessary powers, deputed their Vice-President to visit England in the summer of the past year; and they gave him full authority to make on their behalf such arrangements as should seem to him best fitted to carry forward the great work.

The expenditure to be incurred in carrying out the undertaking is small compared with the magnitude and the national importance of the work.

The projectors confidently anticipate having the cable completed in time to lay it in the summer of 1857. It is proposed to employ two steam-ships in the submersion, each laden with half the cable, and that they shall proceed together to a point half way between the two coasts. The two ends of the cable being there carefully joined together, the vessels will start in opposite directions, one towards Ireland and the other towards Newfoundland, uncoiling the cable and exchanging signals through it from ship to ship as they proceed. By this means, the period ordinarily required for traversing the distance between the two coasts will be lessened by one half, each vessel having only to cover 820 nautical miles in order to finish the task assigned to it. It is expected that the operation of laying the cable will be completed in about eight days from the time of its commencement.

It is no less fortunate than remarkable that the greatest depth and difficulty will thus be encountered *first;* hence, should any accident occur, it can only involve the loss of a very few miles of cable; this part safely accomplished, the progress of the vessels in the process of submersion will be hourly attended with less and less difficulty and risk.

The very grandeur of the undertaking constitutes a sufficient guarantee for its commercial success when carried out; as, in addition to the great use of the cable by the governments on each side of the Atlantic, and in ordinary social intercourse, it will constitute the chief medium through which all the important business transactions between the Old World and the New will be effected. The transmission of intelligence for the press in both Continents will also form a most important feature of its usefulness.

It will readily be admitted that the number of messages at present passed along the wires to or from a single capital like London,* where the rapidity of railway transit renders the Post-Offices a powerful competitor, will scarcely constitute any criterion of the probable amount of traffic through a cable affording the only rapid means of communication between two vast and civilised Continents, and which in its operation will shorten the period of an interchange of correspondence almost from a *month* to an hour, and to which the whole of both networks of telegraph lines, already established throughout Europe and America, amounting to not less than 100,000 miles, will act as feeders. A limited number of commercial messages forwarded from

* Not less than 3000 messages are transmitted in and out of London, and a larger number in and out of New York, daily.

each side daily, occupying the cable but a few hours, will, without any other sources of revenue, produce a large return on the entire capital.

The difference of longitude between the two Continents presents another important consideration connected with the advantageous working of the line; for, owing to the time in America arriving nearly five hours later than in Europe, the whole of the business messages of the day transmitted from this side between 10 a.m. and 3 p.m. will have arrived in America by the time the mercantile community in the various cities and towns throughout the New World have commenced business, and the cable be thus perfectly clear for the return flow of messages to Europe.

Whilst, however, the revenue of such a line must, on the lowest estimate, be exceedingly remunerative, the working expenses, being limited to the two terminal stations, will necessarily be very small. Under such circumstances, it appears difficult to over-estimate the commercial returns that will accrue from this undertaking.

The intended line of the electric cable may be marked on any Atlantic chart from Valencia to Trinity Bay, in Newfoundland, by tracing a curve so that its northernmost bend shall pass through lat. 53° 0′ and long. 28° 0′. From Trinity the electric wire passes along the South side of Newfoundland to Cape Ray, where it joins the cable from Ashpee Bay of Cape Breton Island; from which island it is connected with Nova Scotia, across the Gut of Canso, *above water;* by which the whole American continent is thus placed in electric connection with Europe.

This great and interesting project may be now considered in a fair way of being accomplished. The line across the Gut of Canso has been for some time in operation. That across the St. Lawrence has also been reported by Captain (now Admiral) Bayfield as completed in a masterly manner, without the least accident, by Comdr. Orlebar, assisted by Comdr. Shortland, officers whose able assistance from their knowledge of the coasts and currents with their long experience of that part of the world, the company may be considered fortunate in having obtained. This service forms so important a part of the whole subject that Comdr. Orlebar's report to the Admiral must not be omitted in this account.

Surveying Tender Ariel, St. Mary River,
July 17th, 1856.

Sir,—I have the honour to report the successful termination of the service to which by your direction I gave all the assistance and co-operation in my power. You are aware that I met with the *Colombia* at Sydney on the 4th of June, and that embarking in her I proceeded to Cape North, and on Saturday the 7th sounded across to Newfoundland. The clear weather enabling us to fix with angles at every cast of the lead. Near Cape Ray the wind increased so much that we were forced to discontinue sounding, and having received a pilot, to seek an anchorage in Grand Bay, about six miles E.S.E. of the cape. As it was necessary to determine the position of the objects about

Cape Ray, from whose subtended angles our soundings were connected with the coast of Newfoundland, Capt. Shortland and myself determined on a survey of the coast adjacent, and a chronometrical measurement to Sydney. We remained in Grand Bay until Wednesday, the 11th inst., fog, rain, and easterly wind preventing us doing more than erecting a few stations and determining the scale of our work from careful and repeated observation of the mast-head angle.

On Wednesday we obtained good equal altitudes for time and circum-meridian altitudes of the sun for latitude; and on Thursday, the day following, starting early we ran a line of sounding from Grand Bay to Ashpee; the whole distance of 64 miles we were able to fix from either shore at every separate sounding.

At eight in the evening, having finished the soundings required, we steamed on to Sydney, where we arrived on Friday morning at eight o'clock, and the day being favourable observed for time and altitude at your station on the S.E. bar.

I have given you the result of our measurement in a paper from Capt. Shortland, it now only remains for me to give you the resulting latitude and longitude of my station near the South extreme of Cape Ray.

Sydney S.E. bar by Capt. Bayfield ..	46° 12′ 25″ N.	Long. ..	60° 12′ 47″ W.
N. diff. lat. from my own at Syndey and Duck Island.....	1 21 28	Diff. long.	1 1 14·5 E.
Duck Island obs. alt. lat.....	47 33 53	Duck Is.	59 11 22·5 W
Cape Ray, South extreme from my survey.....	+ 3 9	Diff. long. my surv.	+ 6 46·6
Cape Ray, South extreme	47 37 2 N.	Long...	59 18 9·1 W

The variation of the compass at Cape Ray observed was .... 27° 37′ W.
" " at Duck Island " 27 22

After the completion of the chronometrical measurement, conceiving the *Colombia* was no longer required, we parted company; Captain Shortland returning to his survey in the Bay of Fundy, whilst I returned to the coast of Newfoundland to await the arrival of the *Propontis* steamer, and to complete the soundings approaching the Newfoundland shore, and the triangulation to the Cape.

I continued in the neighbourhood of Cape Ray till the 30th, when hearing of the arrival at Sydney of the *Propontis*, I sailed to that port, and put myself in communication with Mr. Canning, Messrs. Kuper & Co.'s agent for the laying down of the cable. I presented him with a chart of the soundings taken in the *Colombia*, and told him my instructions were to assist him as far as possible as a pilot and surveyor. The following day I returned to Cape Ray, and continued the survey until the arrival of the *Propontis* on Tuesday, July 8th at 2h. p.m.

The weather promising most favourably, we agreed to start as early as possible the following morning. The surf was very high on the

beach, and the end of the cable had to be landed a distance of half a mile in the boats of the steamer; this occasioned some delay. Having myself embarked in the *Propontis*, by request of Mr. Canning, and all being ready at 2h. p.m., we steamed out of the bay, paying out the cable. At first our progress was slow, not exceeding three knots per hour; but finding the cable pay out well, the rate was increased gradually until a speed of six knots was attained. I found by my angles that a current was setting to the North, and we were obliged accordingly to Steer Southward of the direct course. At sunset we were fifteen miles East from St. Paul Island; from this time as the night was dark the rate of going was reduced to three and four miles per hour. The weather continued fine and nearly calm throughout, and at five the following morning the *Propontis* anchored off the Telegraph station, Ashpee Bay. The distance across is 64 geographical or 74 statute miles, and the amount of cable paid out 82 statute miles, leaving Mr. Canning about half a mile to spare when the end was landed on the beach.

The whole was completed by 2h. p.m., and communications were transmitted freely from shore to shore. Thus the great work of connecting Newfoundland with the American Continent was effected in about thirty hours; and no one could have witnessed its progress without the conviction that in the hands of Mr. Canning, if sufficient means were afforded, the spanning of the Atlantic would be a safe undertaking.

Having thus assisted in accordance with my instructions towards the successful completion of the undertaking, the same evening I rejoined the *Ariel*, and proceeded to Sydney, from whence I came on without loss of time to rejoin you at this place. I shall be able to furnish you in the autumn with a fair copy of the partial survey I was able to make whilst waiting for the steamer, and I think you will perceive that what has been done establishes the necessity of an early survey of all this important coast.

I have, &c.,

JOHN ORLEBAR.

In reference to the great distance which the Atlantic cable has to traverse, we find Professor Morse saying, in a letter to Mr. Cyrus Field, whose untiring exertions have been mainly instrumental in bringing about the scheme, that—

"There can be no question but that, with a cable containing a single conducting wire, of a size not exceeding that through which we worked, and with equal insulation, it would be easy to telegraph from Ireland to Newfoundland at a speed of at least from eight to ten words per minute; nay, more, the varying rates of speed at which we worked, depending as they did upon differences in the arrangement of the apparatus employed, do of themselves prove that even a higher rate than this is attainable. Take it, however, at ten words in the minute, and

allowing ten words for name and address, we can safely calculate upon the transmission of a twenty-word message in three minutes. Twenty such messages in the hour. Four hundred and eighty in the twenty-four hours, or fourteen thousand four hundred words per day.

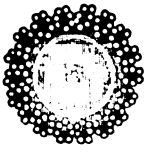
"Such are the capabilities of a single wire cable fairly and moderately computed. It is, however, evident to me, that by improvements in the arrangement of the signals themselves, aided by the adoption of a code or system constructed upon the principles of the best nautical code, as suggested by Dr. Whitehouse, we may at least double the speed in the transmission of our messages.

"As to the structure of the cable itself, the last specimen which I examined with you seemed to combine so admirably the necessary qualities of strength, flexibility, and lightness, with perfect insulation, that I can no longer have any misgivings about the ease and safety with which it will be submerged.

"In one word, the doubts are resolved, the difficulties overcome, success is within our reach, and the great feat of the century must shortly be accomplished."

So much for the powers of the cable and its capabilities.

The annexed sketches of the Atlantic Cable, of the same size nearly as that of the cable itself, will convey an idea of its construction. In the centre of No. 1 are seen the seven small copper wires which will conduct the electric agency throughout the line No. 2 from end to end, insulated by a coating of gutta percha, which again is surrounded by eighteen strands of galvanized iron wire, imparting to it at once strength and protection.

No. 1.   No. 2.

We borrow this from the little *Nautilus*, one of the minor periodicals of the day, that contains besides, a small chart, showing the position which the cable is to occupy in its whole length.

The weight of the cable is 18 cwt. to the mile, and its strength is such that it will bear in water over six miles of its own length if suspended vertically. The flexibility of the cable is said to be such as to make it almost as manageable as a small hemp line. The distance from St. John's, Newfoundland, to Valencia, on the western coast of Ireland, the points between which the telegraphic connection is to be made, is 1,640 nautical miles, or 1,900 statute miles. But the manufacturers are to furnish 2,600 statute miles of the cable, in order to meet the demand for extra cable that may arise from the inequality of the depth of the ocean along the plateau over which the line is to be laid.

The daily papers have long since made known that the important

service of depositing the cable is to be performed by the *Niagara*, a remarkably fine new corvette of the United States, and the *Agamemnon* of our own Navy, each ship receiving on board 1,300 statute miles of it, which, at the rate of 18 cwt. per mile, will assign about 1,170 tons to each. The former ship we understand will receive her portion on board at Birkenhead, and the latter in the river, at the works of Messrs. Glass, Elliot, & Co., near Greenwich.

Having completed the embarkation of it in the course of the ensuing month, the two ships will proceed to sea, and having arrived over the ground on which it is intended to be deposited, at a point midway between Valencia and Newfoundland, the operation of joining the two ends of the cable will be there performed. This being completed, good seamanship will do the rest, and we have no doubt that by it the success of the operation will be fully realized.

As the cable is capable of sustaining six miles of its own weight, there can be no doubt of its sustaining that length when divided between each ship, as we apprehend the operation (the joining being completed) will be commenced by each ship paying over more than two miles before separating, so that the bend of the cable as it hangs between them may take the ground. This done,—the supposed depth of two miles* (2,000 fathoms) being ascertained by previous sounding, —the two ships will part company, one steering for Newfoundland, and the other for Ireland, each paying out the cable as she proceeds at something more than the rate at which she is going through the water, in order that it may take successively the inequalities of the ground at the bottom.

The service, however, is one which will call forth the resources of the seaman to meet those details from which it cannot be exempt, and the proper dealing with which alone can command a successful result. We have every confidence ourselves (although concerned in it only as far as desiring that success which every one must hope for) that the work will be well and ably performed; and we shall look with as much anxiety to the completion of the undertaking as if we ourselves were embarked in carrying it through, and hope to collect a satisfactory statement of these important proceedings in another—not distant —number.

* It may be necessary to observe that the soundings of the *Arctic*, by which this depth was ascertained, have been objected to on account of the times of every hundred fathoms passing off the reel not having been noted. They therefore rest at present on the authority of Lieut. Berryman, an officer of great experience in deep sounding, and for our own part we have confidence in them. But this interesting part of the subject has yet to be confirmed by Lieut. Dayman, R.N., who has been appointed to the *Cyclops*, steam-ship, for that purpose.

THE PRINCIPAL EVILS OF OUR MERCHANT SERVICE, WITH SUGGESTIONS FOR THEIR AMENDMENT.

[We commend the following, from an experienced Captain of our Mercantile Marine, to the serious attention of those who not only desire to see improved the laws by which it is governed, but also who have the power of amending them,—for it goes to the root of the principal evils produced by their defects, and proposes some remedial measures, the adoption of which seems to be highly desirable.—ED.]

London, May 8th, 1857.

Sir,—The many excellent papers which from time to time have appeared in your valuable periodical with the view of bringing to the notice of the public and the legislature the deteriorated state of the Mercantile Marine, induce me to forward you a brief review of its causes and the measures which I would suggest for their remedy, at a time when I see this matter again taken up by a writer in one of our principal daily journals.

Although I fully agree in the opinions expressed at the late meetings on the expediency of revising the constitution of Courts of Inquiry in cases where Commanders have lost their ships, yet it appears to me that this part of the subject is less important than the various defects and *omissions* of the Merchant Shipping Act. This Act having been framed by men who had never been at sea, at least in the Merchant Service, was not likely to effect the object for which it was intended, nor has it done so; for, without actually serving in those vessels, it is impossible to be properly impressed with the imperfections of the system by which they are managed and the requirements necessary to rectify it.

So many conflicting interests are concerned in making any change for the better in the Mercantile Marine, that even with the most powerful aid this would be no easy task. With the exception, however, of one measure—namely, the examination of Masters and Mates—the subjects immediately relating to the actual safety of shipping are either wholly omitted, or at least very tenderly touched on; and it is notorious to all nautical men who have no interest in concealing the truth that nearly all the losses and daily disasters which occur in the Merchant Service may be classed under four distinct heads, viz., *under-manning*, *overloading*, *cheap outfits*, and *absence of discipline*.

I will now proceed to make some observations on each of these subjects, according to their degree of importance; and first as to

Under-Manning.—This evil is by far the most formidable that prevails in the Merchant Service, and is the least likely to be remedied without the interference of the Government. Until it is remedied, all legislation as to discipline may be considered as useless; for, from this cause, at the very outset of a voyage commences a system of grumbling and discontent among the crew. The men, knowing well that they are imposed on, and have to perform the work which the legislature intended should be shared by a larger number, and seeing that they

have no remedy, are thus constrained to do what is called *striking work*.

This happened recently in two instances at Liverpool, where two fine ships (both of 1,000 tons) were intended to be sent to sea with about thirty hands each. The crews of these ships struck work, after having signed articles; and they gained their point, for a proper crew was eventually shipped by each of them. Again, a large ship last year went down to Gravesend, and her crew there struck work, finding that about fifteen more hands were required to work her properly —an object which was at last effected. These cases, however, are of frequent occurrence: in fact, the men have no other remedy. But the evil and demoralizing effect caused by the crew taking the matter in their own hands thus, and getting the better, as they suppose, of their officers, has a most pernicious effect to begin with, and renders it more than probable that the course of events will not go very smoothly afterwards. Among the recent instances of disasters daily reported in the public prints, I will merely now select two. First, the *Martin Luther*, of 1,290 tons. This ship was towed into Plymouth by the *Tagus*, dismasted, with a crew of thirty-three hands. The other is the *Boanerges*, emigrant ship, twice dismasted on putting to sea: once put into Cork and now again at Plymouth. A letter from an unfortunate emigrant in the ship, published in the *Times*, gives an account of the lamentable particulars attending her case.

If ships will go to sea short of hands, dismasting must ensue as a matter of course when an ordinary channel gale comes on, since taking in sail quickly, and properly securing it, is morally impossible. It is this unprepared state in which so many ships are caught at sea that renders the risk of life in the Merchant Service, in a general way, ten times greater than in the Navy, even taking into account the occasional exposure to shot and shell.

In some of the best ships which now go to India four men and a boy for every 100 tons of measurement are considered the minimum number to which a ship's company can be safely reduced, and even this is found too low to admit of any being in the sick list. These ships, however, are rarely dismasted, even in the hurricanes occasionally encountered off the Mauritius. In fact, such ships as the *Blenheim*, *Marlborough*, or *Alfred*, if not overloaded, would weather it out as well as any of H.M. ships. Were even this proportion of men and boys in Merchant Ships made compulsory, and strictly enforced, both wrecks and premiums on insurance would no doubt be reduced some thirty per cent.

I well know the difficulty of carrying an Act of this kind from imaginary interests concerned that would be arrayed against it; but until this proper manning be made compulsory, and strict inspectors are appointed to see it carried out, and do that duty, these disgraceful disasters must be endured. The argument that Americans do with less should not affect us; they being notoriously more reckless of human life than we are, and do, if possible, run even worse risks than our vessels do. But in the whole range of our Mercantile Shipping,

the emigrant ships, which should be the safest, are the worst risks. So bad are they, in fact, that some insurance offices in London will not take a line upon them at any price.

The practice also of under-manning is not so profitable as shipowners generally imagine, particularly where a large number of passengers are on board. For the officers find it then irksome to trim and carry sail properly, and often allow the ship to go several points from her course to save that trouble; by which means more ground is gone over, and longer passages are made than should be. Shipowners well know that such passages are much against their interests; but with the same ships, smartly handled, in some cases a month's maintenance of a large number of people might be saved. We will now refer to

Overloading.—This second cause of the destruction of life and property, although not so general among our shipping as the foregoing evil, is nevertheless often attended with the most fatal results. We read of good ships being abandoned at sea in a sinking state, when the most common care and prudence could have saved them had they been looked after while loading in the docks or in ports abroad.

So little chance do the underwriters consider they have of legislative interference in this particular that they have at last acted in their own defence, and employed several trustworthy Commanders in the Merchant Service to keep up constant examinations into vessels loading in the docks; who are to report as unworthy of insurance any vessel which they find to be improperly loaded. Some are found stowing an enormous quantity of dead weight in proportion to the tonnage, thereby causing leakage and sometimes the starting of planks in the first gale encountered; in others, cargo is found stowed without the superintendence of officers who are actually going to sea in the ships, thereby tending to much mischief and injury to that cargo. The system of deep loading in ports abroad is more difficult of prevention, and ships deep loaded with copper ores and coming round the Horn from the Pacific, are also very bad risks, some stowing as much as four-fifths of their tonnage in thorough dead weight, being in consequence often abandoned and sometimes foundering with all the crew.

Ships from India often come home loaded too deeply with rice or sugar, wearing out their weak and inefficient crews by incessant work at the pumps, or perhaps if troops are so unfortunate as to be sent on board such ships the work of pumping falls on them, causing a general discontent and threats from commanding officers to report the same on their return, but who when once safe on shore are too happy to forget their troubles, and so the public hears nothing of the matter.

Some remedy to these evils might be produced by having ships indelibly marked forward and aft as to the draught of water beyond which they should not be permitted to be brought down in the water, and the Commanders should be made subject to fines for infringement. But vessels required by the emergencies of war might be exempt from this rule by order of the Naval officer in command. The next evil is that of

Cheap Outfits.—A Board, under the auspices of the Shipowners'

Society, is formed in the city of London, called Lloyd's Register of Shipping, composed of Shipowners and Commanders of Merchant Ships. Surveyors of shipping are employed by them. A book is kept up at that Board that describes the character and quality of the hulls of all foreign going merchant ships. Information of a most desirable nature is thus preserved for underwriters and others; but no inspection of the manner in which these ships are *manned* or *fitted out* comes within the province of the Board. Hence, slack rigging, worn out cables, short supplies of sails, hawsers, &c., are entirely overlooked. Were the duties of this Committee extended so as to include the review of every particular in the equipment of vessels, enormous advantage would ensue without any interference on the part of the legislature.

Shipowners who send their vessels to sea short of stores seldom effect that saving which they contemplate, for what stores they have are then applied to improper purposes, while the very foundation of economy is that everything should be in its proper place and everything applied to its proper use. Merely, then, for the sake of saving a few coils of spare rope, or a hawser or two, we see cat and fish falls, braces, and other gear unrove and used for lashings, sometimes even to lash a tug alongside with; and thus it is that good ropes are chafed out and even cut, and when required for their intended use on heavy yards and anchors they give way and become the causes of serious accidents to life and limb, besides tedious delays and their attendant expences! All this is evidently no economy and tends to produce disappointment. Then we come to

Absence of Discipline.—As there can be no pretence to discipline on board a merchant ship under the present system of the Merchant Shipping Act, which is wholly inadequate to form or maintain it, neither is it for one individual to take upon himself the responsibility of drawing up any practical code to remedy so serious a defect in the laws of our Mercantile Shipping,—one which involves the well being of upwards of 250,000 men, among the most loyal and useful of Her Majesty's subjects. This task, however, could no doubt be properly accomplished by a Committee of first-rate professional men, selected thus, viz.: two Captains in the Navy, three Commanders of merchant ships,—clear and independent of present employment, and two shipowners.

But before establishing the means of keeping men in order, it should first be a *sine qua non* that the men on board each vessel should be sufficient to *work* her, so that no just ground of complaint on that score should prevail to occasion discontent. Space and accommodation on board should also be allowed, sufficient for providing reasonable comfort and the security of health and cleanliness, so that room for the crew much larger than that at present allotted will be very generally found requisite. The increasing practice of obliging the crew to berth under the topgallant forecastle in ships which have a proper main deck should be abolished. A man-of-war's man berthing in the manger is unheard of in the Navy. But even in India ships.

they are squeezing poor Jack into that wet and exposed place, into which the sea finds its way through the hawse holes. And for what? to add a few more pounds to the pockets of rich owners at the expense of the seaman! In fact, this is a fraud upon the men, and contributes, with others, to drive them from their land.

In the Merchant Shipping Act, page 932, art. 231, a fine of £20 on the shipowner is recoverable in each case where a certain prescribed space is deficient. But as no proviso is made as to *inspection*, and the crew know nothing of the matter, this part of the Act is a dead letter! Again, in art. 230 a shipowner is liable to a penalty of £100 for not having a Surgeon on board when the number of persons embarked exceeds one hundred. No ship, however, in the Merchant Service in the present day has so many on board at once as one hundred for the crew, so that, unless passengers are included, this also becomes a dead letter. Owners, however, know their own interests too well to let a vessel of even forty hands go to sea without a Surgeon; and, in fact, few Commanders would take upon themselves the responsibility of the various accidents likely to occur to their men in the course of a long voyage. As to provisions, in general there is no just ground of complaint about them.

When seamen are thus properly cared for, and have what they call fair play, then, and not till then, can officers expect the crew will have much respect for them and their employers. This fair state of things being established, a practicable code of laws may then with justice be acted upon, suitable exclusively for ships and seamen, with proper authority to form efficient naval courts abroad, and with ample power to suppress the offences of striking work, open mutiny, running off with ships' boats, insolence, and disobedience, with every kind of disorder which prevails under the present system, and which the ambiguous language of the Merchant Shipping Act is wholly powerless to prevent.

The Civil Magistrates at Bombay, Calcutta, and Hongkong, never having been impressed with the necessity of discipline on board of all vessels, are ever reluctant to punish seamen; and Commanders of merchant ships are placed in most difficult situations as to getting the necessary duties performed. The whole spirit of the Act seems to cripple the power and necessary authority of the Commander, and to favour the disorderly conduct of the crew by the merest nominal punishments, which are often impracticable in their performance. In page 938, art. 6, under the head of "Assaults on officers," it is evident that the Commander of a vessel in the execution of his duty may be knocked down on his own deck by one of the crew, and for this act of open mutiny three months' imprisonment, with hard labour, is the punishment awarded, thus making it a mere common case of assault, as if happening on shore! while the safety of the ship and all on board may be sacrificed by that deed.

The next article, "Combining to disobey," which is, in plain English, "open mutiny," is punishable in the same degree. It is generally considered that the common law will overrule this Act in cases of loss of life, where officers are reduced to the alternative of recovering by

force the possession of their ships; but clearly defined laws would make prevention the better cure.

It is generally allowed that foreign sailors are more orderly and tractable than ours, and are habitually more respectful and obedient to their officers. Nevertheless, so sensible is the French Government of the necessity of supporting the authority of Commanders in all vessels that it may be interesting here to quote only three articles of the French Maritime Code, which are worth more than the whole of our faint attempts put together.

In the *Decret Disciplinaire*, by which the French Merchant Marine is governed, dated at Paris, March 24th, 1852, in the time of the Republic, among others, the following articles occur, viz.:—

Art. 97.—The Captain, Master, or Owner has such authority over the ship's company and passengers as relates to the safety of the ship, the care of the cargo, and the success of the voyage.

Art. 98.—The Captain, Master, or Owner is authorized to employ force to secure the author of a crime, to prevent his doing mischief; but he has no jurisdiction over the criminal, but is to proceed according to the prescriptions of art. 49, 50, and 51, stated above. The seamen of the ship's company are hereby enjoined to assist, by *main force*, the Captain of the vessel to secure the arrest of every offender, under a penalty of one month to one year's imprisonment, independently of a forfeiture of from one to three months' pay.

Art. 99.—In cases of mutiny or revolt, the resistance of the Captain and such persons as remain faithful to him is considered an act of legitimate defence.

Those who take interest in these matters and have any power to remedy the evils above described will do well to peruse the enlightened report of Mons. Ducos, the French Minister of Marine to the present Emperor of the French, when President of the Republic. The Report ably points out the necessity of special laws for the maintenance of order in the Merchant Marine. How much more so in ours, in which the vessels are so much larger, and the men employed so numerous? The great increase in size proposed for new steamers points out the present as the proper time to prepare for the management of large bodies of men. The same laws which govern indifferently a few men will be found wholly useless for the management of large numbers. A return also to the old apprentice system would keep up a proper supply of sailors instead of the useless hands of our ships now, about which there is so general a complaint. Extending these remarks to

Remuneration to Officers.—A liberal remuneration to Commanders and officers in merchant ships has more to do with the safety of those vessels than is generally supposed; and it is well known to those who do not insure that in proportion to the value of the vessel, so they must pay the services of those who have so serious a charge. It is worth their while to get the best officers possible. Underwriters know well enough that where officers are badly paid they take no interest in their vessels, have no respect for their employers, are care-

less whether they leave the ship or not, and are always changing about—sometimes leaving them in Australia, by which many vessels are placed in great jeopardy and obliged to take the voyage home in charge of any they can pick up.

Passengers, also, who trust their lives to a cheap Captain will very frequently close all their troubles by a cheap coffin! Those who have seen things done as they ought to be, know well enough that three-fourths of the wrecks and disasters, the accounts of which daily distress us, might be avoided by correcting the evils above pointed out.

A writer in the *Times*, who signs himself a Shipowner, states that the lowest remuneration given to the Commander of a merchant ship is £200 per annum; which he considers equal to that obtained by Lieutenants in the Navy. If, however, the prospects of the two parties are considered, the Lieutenant has far the best of it, having at all events earned his half-pay, while the other, when unfit for service is left destitute. Supposing, however, they both live and go on twenty years, at the end of that time the Lieutenant will still have the advantage—being at the very lowest a retired Commander. The chances are, however, he may get on even to his flag, while the other could have saved little or nothing, and would be happy even to obtain the last asylum of an alms-house.

The position of the merchant officer is also most precarious. On the slightest difference with his owner he may be turned off instantly, if the articles are not signed; and if dismissed from one employ, no matter how unjustly, it is most difficult for him to get another ship, so great is the prejudice against the unfortunate. A naval officer, however, is comparatively safe and independent. As long as he does his duty, no one can dismiss him the service without a court-martial, composed of honourable men of unbiased feelings, and with minds not warped by any self-interest in the matter.

Let us, however, turn from the inferior vessels and look at the very best, such as the large contract steam-vessels, first class Indiamen, and the Liverpool clippers which have arrived so rapidly and safely with their gold cargoes, and with scarcely but one loss. The value of these vessels is such that the very best officers must be obtained for them. The Commanders and officers of these ships are second to none in point of education,—their examinations comprise exactly the same amount of professional knowledge as those of naval officers. That under Mr. Bell, in London, is of the same order as those undergone at the Naval College. Naval officers, however, are not called on to keep up their navigation, except at their own option, the Master taking the chief responsibility and navigating the ship as a matter of course, unless interfered with, and in case of loss bearing the principal share of the blame.

Among these first-class merchant ships the officers who are said to be the best paid are those of Cunard's line, which takes the route to New York. Great responsibility, and exposure to cold and bad weather attend that service, and few men are fit to undertake it. The salary and allowances of £1,000 per annum, which the Commanders

are paid, are by no means too great a remuneration for such work, where there is no pension or half-pay in prospect. In the large contract steamers from Southampton the pay is from £600 to £800 per annum, and these would be the most popular services if the Commanders and officers were not kept so close to their ships during their stay in port. The indulgence of leave by turns might be conceded there without the slightest detriment to the service, for in these days of rapid communication an address left by the Commander or any officer could bring him to his ship long before she could get away. In the first-class Indiamen officers have nearly the same remuneration as the above, and, not being kept at such incessant work, have rather the advantage of them.

No mistake can be greater than that which some owners make in believing that they save money by the low scale of pay which they give to their officers. Unless something be done to attach them to their service they feel no interest in common with them, and when far from their control they become careless and indifferent as to the property entrusted to their charge.

The great drawback to the whole of these services is that there is no provision whatever for the time when age, ill health, or loss of employment must drive most of the officers into a neglected retirement. Various plans have been proposed to remedy this, but the uncertain tenure of contracts, and the impossibility of men so situated keeping up premiums of insurance, have prevented anything practicable being adopted. But unless it is done, the difficulty of getting good officers, which is now a common complaint, must increase, and both officers and men will continue to deteriorate. The Merchant Service in its present state is the most discouraging for young men of any talent or education to enter; and when the best of its officers are driven to emigrate, and the best of its seamen to enter foreign services, the time will most assuredly come when we shall look in vain for those who have hitherto overmatched all others on their own element. We will now conclude with some observation on

Uniforms.—The correspondence of an eminent Admiral, now no more, has been quoted as an authority for the establishment of an authorised public uniform for the Merchant Service. But had that gallant officer had an opportunity of being personally acquainted with this service as it really is, it is very doubtful whether he would have adhered to that opinion, especially if he had been a voyage to Australia in a ship which I could name. This vessel, of 950 tons, left England with a crew of only thirty hands (all included) and came home with only two officers; who had to keep watch and watch all the way with only ten hands in each watch! The Admiral, with the experience he would have then gained, might perhaps have taken a different view of this subject.

If, however, this same Merchant Service were completely regenerated by the adoption of measures of the kind proposed above, then indeed a general uniform might not be inconsistent. Among other good effects arising from it would be that of tending to bring officers

and seamen into a good system of relative duties. And then, indeed, an enlightened policy on mercantile maritime affairs might assimilate them more with the public service, and organize them in some way similar to a neighbouring nation whose Government knows the importance of making such large bodies of men available for the emergencies of the state.

Assuming that those improvements were made, it would be desirable to form the officers into three classes. The first class should comprise Commanders and officers who belong to, or have belonged to, vessels carrying forty men and upwards, all included. The second class should include those who belong to vessels having a crew of twenty men and upwards; and the third class be formed of those under that number. The coasting trade should not be included in these regulations. My reason for preferring the number of men to the size of the vessel is that those vessels which carry the most men in reference to their tonnage are in general the best fitted out in other respects, and belong to the most respectable class of shipowners.

It should also be provided that the first class should be styled Commanders, and should have first-class certificates, as well as some distinctive *civil* rank, such as would incur no jealousy in the Navy. Some magisterial power should be given to them by commission from the Crown, with proper power over the crew, such as would answer every possible purpose. The other classes might be vested with sufficient power adapted for the smaller number of men; but whatever difference might occur in details could easily be arranged by a Committee, as before proposed. Indeed, the whole subject should be made the business of a well-selected Committee, composed of men of sound judgment and experience; and by their means the Merchant Service of Great Britain might eventually be brought into a condition which would bear comparison in efficiency and respectability with any of the professions, and would prove in time of need a source of power, as well as a permanent safeguard to the country.

Unfortunately, however, nautical subjects have but little chance of obtaining in Parliament that attention which their importance demands, as but few who represent the Mercantile Marine (properly so called) ever obtain a seat in the House. Shipowners cannot be expected to do much in a matter which would appear at first sight to affect their own interests, and without some plan originating with the Government the enormous power of reserves which might be organized from the Merchant Service is likely, as on a recent occasion, to be thought of only when too late for its application, and when some great convulsion in Europe may drive us to extremities.

I have, &c.,

TRIDENT.

To the Editor of the *Nautical Magazine*.

There is so much that confirms the views of our own correspondent in the following, which appears in the *Shipping and Mercantile Gazette* of the 18th

May, that we consider it belongs to the subject, and should be preserved,—for it shows that among those who complain of *their* hard case there are those who have no commiseration for seamen, even to turning them out of their homes, if they will not undergo hardships and privations in their service which the legislature never intended.

Sir,—Reports of a great many meetings of shipowners and masters have during the last few weeks appeared in the columns of your valuable journal. At the whole of these meetings the shipowners and masters are complaining loudly of the burdens imposed on them through certain clauses in the Merchant Shipping Act, 1854, which they are endeavouring to get altered. I do not mean to say that they have not just reason to complain; but I would ask why those who are complaining so loudly of oppression by the enactments of the legislature, never cease to oppress those over whom they have power—namely, the seamen—whenever they have an opportunity of doing so? This is not acting up to the good old proverb, "Do unto others as you would wish to be done unto."

I might be asked—In what way do shipowners and shipmasters oppress seamen? My answer is, by taking undue advantage of their poverty when labour is scarce and the market overstocked with seamen. No matter whether freights are high or low, owners and masters are continually pressing on seamen to sail in ships inefficiently manned and unseaworthy, and for rates which are in no way remunerative for the duties which they have to perform. In many instances seamen are compelled to accept, through poverty, the terms offered; for a man who has any feelings of humanity will risk his life to procure bread for a starving family. In other instances seamen are coerced to accept certain terms. I will quote one or two cases, as related to me by seamen themselves.

A shipowner in one of the N.E. ports of England, who is also a houseowner, lately went to one of his tenants, a seaman, and offered him employment in one of his vessels, which the seaman refused on the grounds that she was inefficiently manned, and that the wages offered were below the current rate paid at the port. He was consequently threatened with an execution for the sale of his effects for a quarter's rent if it was not forthcoming on the term-day, which was then at hand. Another and similar case, in which I read the written notice served on the seaman, occurred last year. Other cases could be quoted, but I think these are sufficient to show the British public the manner in which seamen are taken advantage of.

It might be said, if a ship is seaworthy for a master, she must be so for the crew also. There are many fool-hardy men who, for the sake of having the title of Captain, and for praise or promotion, rush headlong into danger by sailing in unseaworthy ships, &c., as soldiers go into the battle-field trusting to Providence for the protection and safety of their lives.

Brother seamen, bestir yourselves! Arouse from the lethargic state you are now in! Get up petitions to Parliament, represent your grievances through the public press, and never cease your exertions

until a Manning Scale is enforced by the Legislature, compelling all British ships (no matter whether emigrant ships or not) to carry a certain number of able seamen and boys, in proportion to their size. Why should not seamen's lives be cared for as well as the lives of emigrants? If it is justice to provide a certain number of hands on board emigrant ships for the protection of their lives and property, justice demands the same regulations on board all British ships for the protection of the lives of their crews. &c.

I heard a gentleman, in his speech on the hustings in one of the N.E. ports, during the election for South Durham, state that a harbour of refuge was much needed on the N.E. coast for the following reasons: that the ships in the coal trade were not half manned, and the men that were in them were not half paid; that their rigging was not half made; and he considered that if shipowners were allowed to send men to sea in "coffins," there ought to be a harbour of refuge for them to come into as soon as bad weather came on.

Seamen, begin your work, and I have no doubt that friends will be found to advocate your cause.

Seamen's lodging on board ship is a matter that wants looking into. There is a clause in the Merchant Shipping Act stating that each seaman shall be allowed nine superficial feet, &c.; but as there is no person appointed to enforce these regulations in the coasting trade, they are treated as idle tales.

The matter of ships' boats in the coasting trade is another case for consideration, Many have long-boats that will scarcely float in the harbour, and are of no use when needed at sea. Others proceed to sea with only two or three oars on board, others without thowel-pins; and when a boat is required at sea those things have to be looked for, and frequently cannot be found. If the Merchant Shipping Act has to be altered for the benefit of shipowners and masters, let us endeavour to get it altered for the benefit of seamen at the same time.

I remain, &c.,

A MARINER.

To the Editor of the *Shipping and Mercantile Gazette.*

FIDO-NISI OR SERPENT ISLAND, *Black Sea.—By Capt. Spratt, R.N., C.B., of H.M.S. Medina.*

Serpent Island, seen bearing South-East, distant half a mile.

Serpent Island is about a mile in circuit, with a shore formed of precipitous cliffs from 60 to 100 feet high, having deep water near

them. There is much that is interesting about it on several accounts: first from the position which it occupies as the eye of the Danube, and next, from being the only real island, small as it is, in the Black Sea deserving that appellation. Nature seems to have placed it where it is to serve as a beacon or shield against the approach to the low shore and the shallows extending from the mouths of that great European river, the Delta of which has a sea coast of the same low character of more than fifty miles extent, nowhere two feet above the sea.

On account of its mineralogical character also this island is no less interesting, since it cannot be claimed or said to be a part of either the Dobrutcha or Bessarabia from any identity of their approximate coasts; neither can the Danube claim it as originating in its deposits.

The composition or geological characters of its rocks show that it is a fragment of the older group of strata which form the mountains surrounding the South-Western division of the Black Sea, Bulgaria, &c.; and it thus appears to be an outlying peak or fragment of the schistoze group of rocks that occurs in the North part of the Dobrutcha, near Besh Zepeh and Toulcha, for it is composed of siliceous strata, containing large crystals of quartz, and passes sometimes into red jasper. The strata are separated by thin bands of friable shale, and show a thickness of nearly 200 feet through their dip, which is from ten to twenty degrees to the East; although the highest part of the island is only 130 feet above the sea.

From this description of the mineralogical character of Serpent Island, it is evident that it has no connection with the low flat country of Bessarabia, as I have heard often stated; for this coast and also the interior of the country, as far as could be seen from the *Medina's* mast-head, anchored off it, appears not to be ten feet above the sea anywhere, and to be composed of the earthy marl which forms the surface of the level steppe generally. Indeed, the coast of Bessarabia to the North of Serpent Island, is hardly above the level of the reeds and rushes which grow on the Delta of the Danube, and thus appear to be a part of it.

From its antiquarian associations Serpent Island is also interesting, for the ancient Greeks believed that Achilles made it his final abode; and there was once a temple of some celebrity on the island dedicated to the god and hero.

The island is in shape nearly rectangular, with one of its angles prolonged into a small level promontory, about the height of half its greatest elevation. This little promontory has a landing-place on either side of its neck, on a beach of large shingle, with a road or way

Serpent Island, surveyed by Capt. Spratt and Mr. Millard, Master's Assistant, R.N., October, 1856. Lighthouse, lat. 45° 16·1′ *N., long.* 30° 14·4′ *E.*

cut through the cliff or bank on the North side, which way may have served as a slip in which to haul up light draught vessels; but on its South side, where the landing is better, are the remains of a terraced road formed of rude blocks, of a cyclopean style, and evidently of a very early date.

On reaching the summit of this promontory, the interest in this antiquarian association is yet more excited by the surface being almost composed of fragments of ancient pottery. Pieces of vases, patera, and amphoræ appear in great profusion, and the ground is in such a condition as to show that not many years have elapsed since the entire surface was dug over in search of these and other relics. Yet the pottery seems to have been wantonly destroyed, as being little appreciated in a search that was most likely made for articles of more intrinsic value, such as coins, &c.

After a brief search amongst the heaps of pottery, I found several fragments bearing parts of Greek inscriptions, which had been both stamped when the clay was soft, and also scratched on the surface after it was hard and painted. Some of the paintings were in black and others in red, being figures of animals and ornamental designs, but none were entire. The fragments forming parts of elegant vases and patera when perfect, indicated an early occupation of the island. There were pieces of glass and brazen vessels also amongst the heaps of broken pottery.

The vestiges of buildings as well as the handles of large jars, apparently for water, were so plentiful that they indicated the existence of a small settlement on this promontory; but none of the former assumed the character of a temple, which must have stood upon the summit of the island, where several squared blocks of marble four and five feet in length, are still lying. One of these bore some illegible characters; and two or three others, which had rude mouldings, seem to have formed the slabs of a small pediment, and are, I think, vestiges of the temple of Achilles.

On the western part of the island there are also more evidences of the very early occupation of it, the surface being intersected by the foundations of long walls, formed of rude blocks that are no doubt ancient, and seem to have been the divisions of property when the island was entirely cultivated, for the surface of it is for the most part composed of a rich black earth two or three feet deep. There are also two or three evidences of detached buildings of similar character to the above, and three very ancient wells.

These remains evidently indicate an occupation of the island at the earlier period of Greek history, and suggest the idea that it may have been used as a depôt by some Hellenic community which traded with the Danube and the adjacent low country; its distance from the coast rendering it safe from the insalubrity of the marshy Delta, and from molestation by the natives, for it is by nature almost formed into an impregnable sea fortress fit for such a depôt, and well adapted by its elevation as a beacon to the bold navigator of those days for the adjacent coast.

The fullest account of the island in ancient times is given by Arrian in his Periplus of the Euxine, or rather in a letter, addressed to the Emperor Hadrian, detailing a voyage round the Black Sea, from which I make the following extract:—"Thetis is said to have given up the island to her son Achilles, by whom it was inhabited. There are now existing a temple and a wooden statue of Achilles, of ancient workmanship. It is destitute of inhabitants, and pastured only by a few goats, which those who touch here are said to offer to the memory of Achilles. Many offerings are suspended in this temple, as cups, rings, and the most valuable gems; all these are offerings to the memory of Achilles. Inscriptions are also suspended, written in the Greek and Latin languages, in praise of Achilles, and written in different kinds of metre. Many birds inhabit this island, as sea-gulls, divers, and coots innumerable. These birds frequent the temple of Achilles every day; in the morning they take their flight, and having moistened their wings, fly back again to the temple, and sprinkle it with the moisture, which having performed they brush and clean the pavement with their wings. This is the account given by some persons. Those who come on purpose to the island carry animals proper for the sacrifice with them in their ships, some of which they immolate, and others they set at liberty, in honour of Achilles. Even those who are compelled by stress of weather to land upon the island must consult the god himself, whether it would be right and proper for them to select for sacrifice any of the animals which they should find feeding there, offering at the same time such a recompence as to them seems adequate to the value of the animal so selected. But if this should be rejected by the oracle, for there is an oracle in this temple, they must then add to their valuation, &c.; a considerable treasure is thus laid up in this temple as the price of these victims."

The existence of this temple to Achilles caused the island to be also called Achilles by some ancient authors, and Leuce, from its light colour, by others; and although Arrian says it was uninhabited in the time of Hadrian, there is no doubt from the remains upon it that it was inhabited at an earlier period; and probably, in the first instance, for the object abovementioned.

The modern name of Fido Nisi or Serpent Island has, no doubt, arisen from the accumulation of these reptiles on the island since its desertion, and they are now very numerous, being veritable sea-serpents or water-snakes, living upon the fish in the sea, and inhabiting the cliffs of the coast. More than twenty were seen coiled together under a shelving rock as it received the rays of a warm October sun; and many having fallen into the wells and cisterns and died there, the water of those receptacles is not now drinkable, so that for the Turkish troops water must be brought from the Danube.

The serpents are jet black, except along the belly, which is whitish. They have a small head, and are from four to five feet long, and, although said to be harmless, are a very disagreeable looking species.

The lighthouse now standing upon the summit of the island was erected by the Russians, and is built of brick imported for the pur-

pose. The tower is fifty feet high, and shows a beautiful Revolving light of the second order, recently placed in it by the Turkish Government, and first exhibited on the 15th of October, 1856.

In respect of the use of Serpent Island, it has been shown that if territorial identity be in any way considered a point of right to it, that right is more in favour of Bulgaria or the Dobrutcha than of Bessarabia.

The Delta of the Danube is, however, its nearest shore, from which it is about twenty-four miles, being equi-distant from the Kilia and Soulina mouths, but actually visible from neither, although the lights of Soulina and Serpent Island may often be seen from each other.

There can be no doubt that the existence of this rocky island, so immediately off the mouth of the Danube, is a great advantage to vessels bound for the river, for being high and bold, it may be approached without danger. Vessels arriving during a N.E. gale, when the river cannot be entered, may anchor under the island in the summer season, or lie on and off, merely keeping the island in sight, so that when the weather is at all propitious they can shape a course with certainty for the river, and thus take advantage of the first favourable moment for entering.

Serpent Island is thus the eye and shield of the Danube, for it is the seaman's beacon and safeguard against falling upon the shallows of the low coast, when from the influence of currents and the absence of observations for several days, as is usual in N.E. winds, he would, from the uncertainty of his reckoning without such a beacon, either lose much time by keeping too great an offing, or be embayed or stranded on a lee shore from approaching it too closely at an unfavourable moment, in ignorance of its true position, until too late to be avoided.

When the *Medina* anchored off the S.W. point of Serpent Island at the close of a N.E. gale, she found four vessels anchored under shelter of the island, at about one cable from the shore in 12 and 15 fathoms.

The bottom is fair holding ground in that depth all round the island, and seems to consist of mussell-shells and mud, into which the anchor sinks.

Arrian mentions that the island was a sort of refuge for the mariner in stress of weather in the earliest days.

Thus it is evident that by the addition of a light upon it, the island is rendered doubly valuable to the navigation and trade with the Danube; and to this trade, therefore, the island is of special use and importance. It is true that vessels bound for Odessa may benefit by this light in rectifying their course; but to that trade it is not so much a necessity as to the Danubian, because Odessa has a high coast on either side, and has its sea warning in the advanced and elevated light upon Cape Fontana in addition to its harbour lights.

Therefore it is clear that, to the trade of Odessa, Serpent Island is not a necessity, although sometimes serviceable; for it must be borne in mind that this island is not a danger, but Nature's sea beacon,

being high and bold; and by the addition of the light the position of the beacon is merely made as visible by night as by day, at the greatest possible distance; so that whichever mouth of the Danube is adopted for navigation, Serpent Island is of great utility to the mariner as a sea beacon or sentinel to the low coast of the Delta; for it is not necessary for a vessel actually to approach close to it before bearing up, but merely to see it, which can be done by night or day, in clear weather, even from eighteen to twenty-four miles distant.

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria.*

(Continued from page 240.)

The appearance of the land was now different to that we had hitherto seen. Instead of dark granitic mountains we had white sand hills before us, which reflected a bright glossy light from the sun, assuming with mirage every fantastic shape, and reflecting their strange and irregular figures in the sea below; some patches on the hills resembled large houses or country seats, and frequently had the appearance of cities in tropical regions.

As the evening of the 16th closed on us, the night being fine, we stood on, although in intricate waters, in hopes of anchoring at Booby Island the next day, so as to have made the passage *within* the time allowed by Capt. Blackwood's Sailing Directions!

Having passed Turtle Island, however, darkness obliged us to anchor near it until daylight, when we were again off, passing the opening to Kenedy River; and also within a prudent distance of the coast about Albany Island and Cape York.

The increased traffic through Torres Straits has directed attention to this island as a depôt for steam communication, as well as a refuge for the shipwrecked mariner. I have not seen any spot (from a distance) better adapted than this, open as it is to a brisk S.E. trade wind for half the year. It would prove beneficial to the natives, and a home for the shipwrecked sailor might be established there, who now proceeds to Booby Island, where, if his patience is exhausted he makes a desperate effort to reach Coepang. Stores of various sorts for shipping would find many a purchaser; scarcely a vessel comes through the Barrier without loss of anchor or anchors, from the strength of tides.

Cape York is not so attractive in appearance as Albany, and is objectionable from being surrounded by shoal water bays. It is particularly barren in appearance, but is attractive from the number of ant hills, of red clay, about ten feet high, which are scattered about it, and may be seen a considerable distance. On first seeing them on Albany Island in a cluster, they appeared an encampment, very much resembling our ordnance tents, but more peaked, like a sugar-loaf.

Fresh water is abundant in Evans Bay, two miles from Albany; the *Fly* filled between 70 and 80 tons there.

After rounding Cape York, the Prince of Wales Channel was taken in preference to Endeavour Strait that we might observe the spot where the *Phœnix* steamer was wrecked, as well as the cause of that accident. Besides, intending to call at Booby Island to ascertain if there was any notice of the North Australian Expedition, this route was twelve miles nearer. Passing *between* Straits Rock and the rock awash off it, towards Wednesday Island, we found a very strong indraught.

At noon, with a fine commanding breeze and a clear sky, we entered the much dreaded channel, the water quite smooth, but the current rushing madly by at the rate of about five knots per hour, particularly off Hammond Island Rock, where the *Torch* was scarcely manageable. On hauling up for the Ipili Reef of rocks above water, there lay, on a sunken two fathom rock, the remains of the *Phœnix*, one paddle-wheel and a portion of her engine above water, a miserable picture to the voyager.

This ill-fated steamer, belonging to Capt. Towns of Sydney, left that place about a year ago in charge of Capt. Chilcott, an experienced and clever navigator, bound to Point de Galle and Singapore, for sale, loaded with coals; and in passing the Straits ran on a sunken rock, which made her a total wreck. Her crew escaped to Booby Island, from whence they reached Batavia and Singapore. The vessel is now lying with her paddle-wheel above water and part of her cranks, as well as one cylinder or air pump cover. All her wood work is entirely gone, either destroyed by natives or washed adrift by the strong tides; and there she remains, a beacon to the mariner! Her unfortunate commander has departed this life, I shall therefore forbear making any remark that may reflect on him. These that I am about to make may I trust be of service to those who follow in the successful wake of the *Torch*.

The *Phœnix* went on shore during daylight on a reef of rocks above water at high tide,—the Ipili Reef,—how did she get there?

After entering the Prince of Wales Channel nothing is in the way of a ship until rounding Hammond Rock, which may be done at the distance of a quarter of a mile, as the tide rushing through here very rapidly, (five knots per hour,) requires great care in keeping the vessel in hand ready for any manœuvre; if she once takes charge no anchors will hold her, and destruction is certain. From this rock a vessel should keep on the course pointed out, viz., S.W.b.W. until Round Island bears S.E., then haul boldly up for the dry rocks of the Ipili Reef, always in sight, and pass them at half a mile distance. When the highest part of Goode Island bears S.E., steer for Booby Island W.b.S., when you are clear of all dangers.

To show the necessity and advantage of the captain of a ship under any circumstances keeping his eyes about him, if I had allowed the Sailing Directions for Torres Straits, (1853,)* page 14, to

* An old edition, but now corrected.

have been my guide, the *Torch* would soon have been alongside the *Phœnix* in the same predicament; but all this has since been corrected, and the foregoing are sufficient instructions.

We passed within a cable's length of our less fortunate friend. She was the first steamer that attempted to sail through,—and was lost. The *Torch* was the next, and although inefficient, (?) was successful.

At noon, when the Ilipi Rocks bore East, and the West end of Goode Island South, we bore up for Booby Island, and hoisted our colours, rejoicing at our anxious twenty-two days of intricate navigation being concluded. During this Inner Route Passage we had passed close by or over *eleven* dangers, the existence and positions of which are marked doubtful. We also expunged one island—Bailey Island—and discovered a rock 10 feet above water, as well as a new and shorter route through the Percy Isles.

With light hearts at feeling ourselves once more in clear water, free from dangers, we thought of nothing but our good fortune until we were close by Booby Island, and here anchored late in the afternoon, having made our passage in twenty-two days from Newcastle. Capt. Blackwood states in his *Directory*, that "a fair passage by the Inner Route from Sydney to Booby Island is from twenty-five to thirty days;" the Outer Route nineteen days. We have therefore reduced it by three days; and this too with a paddle-wheel steamer under *sail*.

The first thing was to land and see if any notice had been left connected with the North Australian Expedition. There was none.

The Post Office was visited, and a preserved potato tin, with the bottom out, found with notices to the following effect:—

Three vols. *Chambers' Miscellany*, left by Capt. Black of the brig *Gallant*, of Calcutta, May 25th, 1856, from Geelong to Singapore. Also this day the *Gallant* and *Arratoon Apcar*, I. Francis, Commander, called *en route* to Singapore, having left Melbourne 2nd of May. Entered Torres Straits by Bligh's Entrance. Saw the wreck of the *Phœnix;* and for the use of any unfortunate mariners who may pass this way, I have left,—one bag of bread, a few onions, three boxes matches, a few yams, some paper and pencil, oil, coals, and salt, one box cheroots (250), a little sugar, three bottles rum, a cake of windsor soap!

Left by the ship *William Prowse*, one newspaper, *Southern Cross*. *William Prowse*, of Liverpool, Wm. Williams, Master, sailed from New Zealand 5th of May; sighted Norfolk Island; entered the Barrier on the 9th; boarded the *Challenger*, of Melbourne, bound to Singapore, twenty-four days out, with loss of anchor and 45 fathoms of chain, while riding under the Middle Banks, Torres Straits; no other vessel seen. All well on board.

Barque *India*, of Hobartown, left 3rd of June; 23rd anchored under Cockburn Reef, two anchors down, lost one; visited natives in Blackwood Bay, a queer lot, baccy and rum in demand; twenty-six days out. All well.

Barque *Antoinette*, of Rotterdam, Sydney to Batavia; left stores of various sorts in the Cave. Had squally weather off Middle Bank; twenty-four days out.

Royal Saxon, of Sydney; left 15th of June; anchored at Booby Island 28th of June; left two letters for transmission.

Barque *Alverton*, Melbourne to Batavia; Booby Island August 23rd. All well.

Brig *Forelaw*, Geelong to Batavia; 23rd of August, 1855.

Marie Gabriel, Sydney to Samarang; 9th of September, 1855.

Ship *Gloriana* came through Bligh's Entrance, September 25th, 1855; saw the wreck of a steamer; mentions a letter having been left, so suppose it has been forwarded.

Marie Cæsar, Sydney to Timor and Manilla, 7th of October, 1855. This ship saw six wrecks on the Detached Reefs, two of recent loss; 7th of October, saw a brig on the reefs, N.N.E. from Raines Island. When Raines Island bore North from the ship, four more wrecks were seen from the fore top-gallant-yard. Two boats with white men had gone to the Westward just before.

Washington Irving, Durant, Commander, from Sydney 7th of May, 1856. Landed government provisions.

Acaster, barque, seventeen days out.

Sky-rocket, schooner, Melbourne to Ceylon, twenty-eight days out.

Robert and Betsey, brigantine, Melbourne to Colombo, 8th of May, 1856, twenty-eight days out.

Alexander, brig, from Nelson, twenty-one days out.

Nora, schooner, and *Chieftain*, through Bligh's Entrance, sixteen days out. All well.

Blair, barque, Sydney to Calcutta, twenty-one days out. All well. 27th of June, 1856.

It will be seen that all these vessels have come the Outer Route, and have passages as follows:—23, 23, 24, 26, 24, 13, 17, 28, 28, 21, 16, and 21 days. Five of these have been more rapid than the *Torch*, (22 days,) and seven have not been so expeditious. Two vessels have lost anchors and cables. One vessel, the *Marie Cæsar*, has seen eleven wrecks on the Outer Barrier, one inside.

This I think is convincing proof of the superiority of the Inner Route, and the necessity of having a "Shipwrecked Sailors' Home" on the northern shores of Australia. Those two boats with white men, spoken of by the *Marie Cæsar*, have never been heard of since, now ten months.

Booby Island, Post Office.

To the liberality of Mr. Watson we were indebted for a flag-staff,

and a puncheon cask was converted into a post-office, with shelves in it for small stores, books, &c. The flag-staff, 20 feet high, was an old fore top-gallant and royal mast of the *Torch*, and the "New Post Office" was a new puncheon placed on its end, three bung staves taken out to the hoops, shelves placed in it, and a tarpauling nailed over the top, with a flap covering the opening, and painted "Post Office." In this were placed the library books, pens, ink, and paper, the "Letter Bag" for the Postmaster General, Sydney, and all the small perishable articles placed on the shelf, such as tea, cigars, sugar, salt, &c.

The provisions in the cave were found to consist of—two barrels of beef, two ditto pork, one keg of rum, three bags of bread, one cask of bread, eight hogsheads of water, twenty tins of preserved meats, two bottles of rum; besides many smaller articles noticed before.

A large strongly bound book for the purpose of noting any particular incident that may befal the passer by, was left there by us with the following memorandum in it:—Note Book for Booby Island, or Shipwrecked Sailors' Retreat. Left here by Lieut. W. Chimmo, of the *Torch* steamer, 17th of July, 1856. It is particularly and earnestly requested that all sailors, &c., visiting this island, will note in this book any information they may have collected during their passages which may be of use to the mariner while threading his way through the Barrier Reefs; and when this book is complete to transmit it by the first and safest opportunity to the Secretary of the Admiralty, London (Hydrographer).

It would be of the utmost benefit if captains of ships would on entering the Barrier get an observation for latitude.

The *Torch* steamer called here and anchored on the 17th of July, 1856, twenty-two days from Newcastle, Sydney, N.S.W. The weather has been in general fine, with strong S.E. trades, and occasionally a thick and rainy day. No vessels have been seen, and few natives. She came the Inner Route from Sydney. No sickness on board. Letters have been left for conveyance to Sydney for the Governor-General, for the Australian Exploring Expedition, and for Capt. Browne.

Onions, potatoes, and pumpkins have been planted in the most available spots, for the use of those who may be cast away in this vicinity. It is to be hoped others not in distress will follow this example.

The *Torch*, Mr. Watson, owner, with Lieut. Chimmo on board, sails to-morrow for the Albert River, Gulf of Carpentaria, to search for the North Australian Expedition; thence to the Victoria River, for a similar purpose, as well as to look after the schooner *Tom Tough*; therefore let all passers by have an eye to this, and aid if opportunity offers.

Government provisions in quantities will be found in the cave on the lee side of the island. Wells of fresh water are to be found on the weather side of the island.

The Post Office is removed to a more secure spot in the cave with

the provisions. A cask will be found (water tight) marked "Post Office by Torch, 1856," with notices for passers by and letters for transmission.

A flag-staff is erected by *Torch*, 20 feet high, on the most elevated part of the island, with a flag flying on it, to attract the attention of ships passing.

Copy of notice left for Mr. Gregory or any member of the N.A.E.E., Booby Island, 17th July, 1856.

The *Torch*, steam-vessel, under the guidance of Lieut. W. Chimmo, has been sent to render assistance to the above expedition by his Excellency the Governor-General of New South Wales.

The steamer leaves Booby Island this day with provisions and dispatches, intending to call first at the Albert River, whence, if no traces of this expedition are to be found, she will proceed to the Victoria River, tracing the coast along the West of Carpentaria Gulf,—along the North coast from the Wessel Islands to Port Essington, (perhaps call there,) and from thence down the East coast to the Victoria River, where Lieut. C. hopes to find the expedition in health and favourably progressing.

A notice was also left for the Governor-General of New South Wales, apprising him of my arrival and future movements.

While I was taking my observations for the correction of the chronometers, a party had erected a flag-staff with a flag on it, and the carpenter, under the superintendance of Mr. Watson, was fitting the New Post Office. Books were added to the library by the Chief Officer of the *Torch*, with the hope that they would pass away a dreary hour for the shipwrecked sailor.

All being complete, we left this retreat, in some measure represented in the sketch.

Cave on Booby Island.—Provisions for the Shipwrecked.

The anchor was tripped, the ship's head turned south, and I contemplated with anxious feelings the task I was about to perform.

There lay before me an expanse of water of 81,000 miles area; discovered in 1663, its shores were traced by Flinders in 1802. Its southern portion was surveyed by Stokes in 1841. But between the meridians of 137° and 141° 30′, and the parallels of 11° and 17°, embracing 81,000 square miles of water, many have regretted they had not an opportunity of seeing.

It has been stated that "land exists in this gulf." I quote from Stokes' Voyages, vol. ii. p. 328.—"After the S.W. monsoon had set in strongly, numbers of cocoa-nuts are thrown on the N.W. shore of the Gulf of Carpentaria. In the year 1839, a small proa was driven off the coast of Timor Laut, during the N.W. monsoon, the wind blowing hard drifted them to the S.E. for three days and three nights, when they came to a low island with no traces of inhabitants, and abounding in cocoa-nut trees, upon the fruit of which they lived until the monsoon changed, when they sailed back to Timor Laut. Flinders, when off Batavia River on the N.E. side of the gulf, was led to suppose that an island existed to seaward of him, from seeing some flocks of geese coming from that direction one morning. Wilson also, in his Voyage round the World, speaks of the Macassar people reporting an island in the Gulf of Carpentaria with sandal wood on it."

With these prospects of new discoveries I certainly did feel proud at being the first to traverse these waters, and to find from day to day that I was going over regions hitherto unexplored; and I must also add that I felt very much indebted to Capt. John Washington, the Admiralty Hydrographer, for having nominated me for the service about to be performed, although perhaps the prospect of such a glorious track as this was not contemplated, as the Victoria River in the Cambridge Gulf was supposed to be head quarters.

Anticipating therefore seeing something new, (if but water,) I had a constant look out from the most elevated part of the mast-head, and took our departure from Endeavour Strait; but at 10h. p.m. we anchored for the night in 10 fathoms, finding that we were under the influence of a tide.

At five the next morning, the 19th of July, with a breeze fresh from E.S.E. we made all sail. There was an unusually disturbed sea, with the wind heading us from S.E. and South; 16 to 26 fathoms, sand and mud; great quantities of seaweed seen; several tern, frigate-birds, and a tropic bird, porpoises, and flying-fish, were our occasional companions. But the novelty of sailing in unfathomed waters, suggested the idea of towing a drag overboard. At the first haul we obtained some curious specimens, which were duly preserved. This amusement, besides that of looking out for new land, was varied on the 23rd by a visit from a large muster of boobies, which settled on the rigging and about the ship, until the crew became tired of catching them for amusement, and letting them fly from the deck, which was difficult. Several turtle were also seen about. During the night the wind increased, and, as the moon rose, became a gale, to which the sails had to be furled. The sea also very heavy.

By my noon observation we had been set considerably to the Westward among the Pellew Islands, in the S.W. part of the gulf, having seen nothing of any new land.

At sunset the weather moderated, and we saw for the first time "smokes," which set us speculating whether they were from civilized or uncivilized mortals.

To our mortification and surprise it came on again to blow with renewed effort, and we were compelled to lay to, the sea as before getting up very suddenly. The wind was more from the Southward (S.S.E.) At daylight we had no more cheering prospect. There seemed no chance of a change, and we were within a few miles of our destination without being able to reach it.

On the next day the gale had subsided, but the weather we had was very different to that experienced by the *Beagle*, where, during the same month and almost the same day, they had generally calms at night, wind from S.E.

On Sunday the 27th the noon position proved we had been set to the Westward the last twenty-four hours half a mile per hour. And as it appeared that we were losing precious moments in endeavouring to get to windward, I determined, if no favourable change came, to get up steam next day; it is but twenty-four hours distant, whereas under sail it is impossible to say when the vessel may reach it, I think this would be a saving to government, although in opposition to my "charter party." Accordingly at noon the following day the *Torch* was under steam, and passed through quantities of sea saw-dust of only *one* species, resembling a grain of linseed, and not smelling unlike it, containing a great quantity of animal matter. On decomposition taking place it turned an emerald green,—unlike the last fourteen kinds, which turned pink.

At daylight, on the 29th, Rocky Islet, the sentinel of Isle Mornington, was N.N.E. of us three miles, and the low sand bank on its western side somewhat nearer. The islet is a low flat rock standing on some loose dark material, about 20 feet in elevation. The sand spit or rather islet, for it is nearly of the same elevation, appeared to be a mass of conglomerate of coral, sand, and shells; its position with regard to the rock appears to be in error.

Isle Mornington, a low wooded island, was to the Southward of us as we were taking every advantage of a dead calm.

The natives appeared now to have made out the *Torch* to be a *stranger*, and began to light their fires in all directions to attract us to them. Turtle were occasionally seen asleep on the water, and numerous gannet passing to seaward for their daily allowance of fish.

We were now passing easterly along the North side of Mornington Isle, and much outside Flinders' track, in irregular soundings from 12 to 6 and 20 fathoms, when suddenly a shoal was seen ahead, and which from its discoverer I have for the present called "Watson's Patch," having only a few feet water on it; it is three miles from the nearest land. Flinders must have passed inside of it without seeing it.

After being diverted from our course to avoid coral ledges, and

alarmed by shoals as well as made nervous by muddy water, collections of sea saw-dust having the appearance of coral reefs, and numerous eddies and similar nautical varieties, which kept us on the alert with our lead, we anchored at 5h. p.m. off Bountiful Island, (of Flinders,) S.E. of the N.E. part of Isle Mornington. We had now but a few gallons of water remaining, and it was absolutely necessary that some should be obtained. Therefore, before dawn of the next day, the 30th of July, all boats were away looking for water; none was found with the exception of two brackish water holes; but it was a great consolation to know that if the North Australian Exploring Expedition called here, although disappointed in water there would be abundance of turtle awaiting them on the beach at low water. The crew of the *Torch* turned and brought on board twenty-nine turtle from eight to ten in the evening.

During the rambles of the crew they came across some graves; and one turtle was found turned above high water mark, a circumstance which excited our curiosity. Having ascertained that some of the crew had incautiously indulged themselves in eating of the pod of a creeper much resembling our broad bean, on their return on board, after pointing out the danger they were in of poisonous effects, I made them all swallow an emetic. I took good care that for their sakes it should be effectual, so it was not very long before a series of operations commenced similar to those common to our Dover packets. But instead of the rueful faces displayed in them over the steward's basins, waiting for the first shot, as it is technically termed, my men made light work of it, although they had enough that time to make them cautious in future not to eat "everything they see." The creeper *might* not have been poisonous, but as they were all very much frightened, and did not recover their dosing until next day, the lesson was well administered.

At nine the following morning, disappointed in our search for water, we left our anchorage for Sweers Island, to the Southward, where I knew that if the *Investigator's* well was no more, that of the *Beagle's* would at all events be found. In my passage down I took a more off shore track than that of the *Beagle*, and was enabled to add another line of soundings to this chart. After rounding Locust Rock in very irregular depths, from 12 to 3 and 6 fathoms, hauled up N.W. ½ W. for Investigator Road, placing another line of soundings in a blank space and in the immediate approach to the roadstead.

At sunset we anchored in 3 fathoms, within two cable's lengths of the sand spit, and although dark at once landed to see if the well dug by the *Beagle*, fifteen years previous, contained water. On landing we found that natives had preceded us, their tracks were plainly visible, and they had left a bundle of wood for fire or signals on the spit; they had taken a canoe with them into the wood, and had evidently come from Bentinck Island. It was too dark even to find the well, so I had to return on board, where we had but seventy gallons left, the greater portion of which was unfit for use, the sediment of all the other tanks having deposited in it.

Before day dawned on the 31st of July, all hands were on shore looking for water. About a mile East of our anchorage we found what remained of the *Investigator's* well, completely blocked up, to be distinguished only by a slight undulation in the ground: traces of natives were seen under almost every tree. Sticks for erecting tents or huts were lying about, tied up with grass-cord, and bundles of sticks ready for burning. It was not long before we all assembled beneath THE TREE, which still plainly bore the inscriptions of the "Investigator and Beagle;" the former fifty-four years since, the latter fifteen: and here we indulged in a glass of the "Queen's own," to the memory of the adventurous and intrepid Flinders, and to the health (I hope) of the next follower of his footsteps, Capt. J. L. Stokes, R.N., with all the honours due to the occasion. The *Torch's* name was *not* added, for if all did the same the original would soon be obliterated, which I hold to be next to sacriligious, considering that the original and originator stand alone as long as wind and weather will permit.

On our return to the spit we picked up a piece of a lower deck mess plate, (China,) as well as a metal inkstand of European manufacture with the lid gone: it is about nine inches long, by five wide, by three deep, figured on the outside,—leaves of trees that would puzzle a botanist,—which will form a valuable or rather most interesting relic for the British Museum. It was found at high water mark (by Mr. Watson, owner of the *Torch*, to whom I am indebted for it) and about a cable's length from "the Tree;" such a thing could hardly be left there by the *Beagle*, and if in the hands of the natives for fifty-four years would have been destroyed if lost or left by the *Investigator*. How it came there was a riddle.

The remains of the *Beagle's* well was found, but full of earth, stones, and wood, whether accidental or intentional I do not know, I hope the former, for I hardly suppose the natives would act in such opposition to their own comfort as to destroy it intentionally; by constantly going up and down for water earth and stones may have fallen in.

Our hearts sunk within us as we gazed on this piece of destruction, and also at the prospect of finding no water. However, gazing did not last long, all tools were brought from the ship, sheers were soon up, and an awning spread, and every one went to work to clear the well. By noon this was done, and the water was dripping into it, (a depth of 25 feet,) through a rock of concreted lime, sand, shells, and pebbles. We were indeed overjoyed, the main-brace was spliced, and that evening we had one ton of water on board, but somewhat brackish. At 8h. p.m. I fired a rocket to attract the attention of any one looking in our direction.

(To be continued.)

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from p. 263.)

The General Currents of the Indian Ocean.

In the Indian Ocean the equatorial current is found only between the parallels of 10° and 25° S. lat.; that is, within the limits of the zone occupied by the S.E. trade winds. Commencing near the meridian of 100° E. long., it reaches the African coast with some few interruptions, which will be noticed hereafter. On the above meridian, the cross current of the Indian Ocean meets it, to which our attention shall be first devoted.

Cross Current of the Indian Ocean.—The cross current of the Indian Ocean, or counter current of the Cape of Good Hope, is formed of two others. One is a branch of the cross current of the Atlantic; the other is a branch of the Lagullas current, returning into the Indian Ocean a portion of the waters which run S.W. and South, along the East coast of Africa. In fact, this cross current of the Indian Ocean, running Easterly, mingles its waters with those from the South Polar regions flowing towards the equator: the result of which is that its first direction becomes modified, and it sets from E.N.E. and N.E.

Off Cape Leuwin, the S.W. point of Australia, the cross current of the Indian Ocean is divided into two branches. One, flowing Northward along the West coast of Australia, mingles with the equatorial current about as high as the tropic of Capricorn. The other, called the Australian current, flows eastward and E.N.E. along the South coast of that continent, extending from the coast as far as the parallel of 40° S. lat., or thereabouts. South of this, variable currents are generally found.

The temperature of this current on the parallel of 40° has been found about 56°; on that of 30°, from 66° to 70°. This last temperature was between the meridians of 92° and 102° E. long.

The rate of this cross current is very variable on the surface; it depends on the winds, concerning which we are deficient of information. Off Cape Lagullas the mean velocity of the current is about thirty miles a day. Its breadth is often 210 to 240 miles, and it is mostly found between the parallels of 36° and 37° S. lat., and 40° and 42°. It increases in proportion as it advances eastward, and it would be difficult, from the nature of its formation, to say what are its precise limits.

This current is particularly important to vessels passing from the Atlantic to the Indian Ocean, and crossing it from the westward in order to reach the Pacific. From the island of St. Paul to Cape Leuwin, Capt. Torin tells us that he was once set thirty miles to the eastward in the course of his passage, the duration of which he does not mention. A second voyage he was set sixty miles; and in a third 202 miles within those positions. From these three passages, made

in October, November, and December, he concluded that the easterly counter current increases in rapidity as the season advances.

Australian Current.—The branch of this current called the Australian current, after flowing along the South coast of that continent, gradually diminishes as it progresses easterly, and does not extend into Bass Strait, where variable tides and currents are found, generally depending on the wind. It turns to the southward of Van Diemen Land, and its northern limit is in about lat. 45° S. It then enters the Pacific and joins the counter current of this sea, to which it contributes all it can.

Off Cape Leuwin, to the westward, the temperature of this current varies from 65° to 61°. It then gradually decreases as it advances eastward, and on the meridian of Van Diemen Land it is between 47° and 49°, which is its highest temperature. It afterwards increases as the current enters the Pacific.

The velocity of the Australian current is very variable. Near Cape Leuwin it has been estimated at twenty-eight and twenty-nine miles a day. As it advances eastward, towards Bass Strait, it decreases, and varies between sixteen and thirteen miles.

On the southern limits of the Australian current we generally find a counter current flowing westward with irregular force. Beyond this we have little information concerning this Australian current, which Flinders considers, rightly in our opinion, as a continuation of the counter current of the Indian Ocean.

Equatorial Current.—The Equatorial current, as we have already said, is only found South of the equator, in the Indian Ocean. Its northern limit is about the same as the equatorial limit of the S.E. Trades, namely about 10° S. lat. On the meridian of 100° E. long., its southern limit often reaches as far as 25° S.; but this limit as the current advances westward inclines northwardly, and decreases the breadth of the current, which on the meridian of the Island of Rodriguez, does not extend beyond the parallel of 10° or 20° S. lat.

On the meridian of Rodriguez it separates into two branches: one, flowing S.W., surrounds the Island of Mauritius, and its northern limit passes South of Isle Réunion* and afterwards South of Madagascar; on which meridian this branch is 480 miles across, and has a temperature of 75° and 76°. From this meridian its breadth decreases rapidly, and, flowing to the S.W., it joins the Lagullas current southward of Port Natal. At their meeting the breadth of the equatorial current is not more than about seventy or eighty miles, and its temperature has been estimated at 70° or 72°.

In that space comprised between the Lagullas current, the S.W. branch of the Equatorial current, and the western coast of Madagascar, the currents are very variable, sometimes setting E.S.E. and S.E. near the northern limit of this current, and North and N.E. near the eastern limit of the Lagullas current. The rapidity of these counter currents is often considerable, and sometimes attains fifteen or twenty miles in twenty-four hours.

* Which we call Bourbon.

As we have already observed the S.W. branch of the Equatorial current flows round the Islands of Rodriguez and Mauritius, but does not reach the Isle of Reunion; near which, to the northward and eastward, currents are sometimes met with running N.W., N.N.W., and North. Off this island the velocity of the S.W. current varies from ten to fifteen miles a day. Off the South point of Madagascar it has been found to be from forty to fifty miles.

The West branch of the Equatorial current, which may be regarded as a continuation of this current, runs W.N.W. and, passing round the northern end of Madagascar, enters the Mozambique Channel, joining that current and flowing with it along the East coast of Africa. Off Cape Amber, its velocity has been estimated at from forty-five to sixty miles a day, and its temperature has been found about 78°. This branch of the Equatorial current is about 360 miles across. After joining the Mozambique current the Equatorial current forfeits its name, and pursuing their course along the East coast of Africa, on reaching the latitude of Natal, they obtain the name of the Lagullas current.

This great current flows along the South coast of Africa, and on gaining the meridian of 20° E. the main stream forms into two. The first mingles with the counter current of the Indian Ocean, already noticed, and the second flows into the Atlantic Ocean, continues N.N.W. and N.W. along the West coast of Africa, and joins the southern portion of the Equatorial current of this sea.

The velocity of the Equatorial current is very variable; nevertheless it attains a rate of twenty to twenty-two miles a day. Its mean force may be estimated at twelve or sixteen miles a day.

The temperature of this current, from its eastern commencement as far as the meridian of Rodriguez gradually increases, and there varies from 72° to 82°.

Mozambique Current.—During the whole year, and particularly about the equator, a constant current sets along the East coast of Africa from N.E. to S.W., towards the Mozambique Channel, from which it derives its name. In this channel it attains considerable strength, particularly off Cape Corrientes.

Arrived at Cape Padrao, the Mozambique current here changes its name, taking that of the Lagullas or the Cape current. Off this cape it receives the S.W. branch of the Equatorial current, and flows with greater velocity near the coast than it does at a distance from it.

The mean velocity of the Mozambique current varies between eighteen and twenty-eight miles a day. Off Cape Corrientes it has been found to be 139 miles in the twenty-four hours, under peculiar circumstances. There is no other instance of so strong a current, unless perhaps it be in the full strength of the Gulf Stream. The current of Mozambique is stronger during the S.E. monsoon than in that of the N.W.; and this is accounted for by the accumulation of water forced by the wind on the whole African coast of this sea. It varies much in breadth, according to the different parts of the coast.

On the West coast of Madagascar a counter current is found setting northward, said to be partly occasioned by the Mozambique current.

Off Cape Guardafui, in the parallel of this cape, the temperature of the Mozambique current has been found at 86°. As the current progresses southward the temperature falls. In the Mozambique Channel it is not more than 65° or 66°; but, receiving there the Equatorial stream, heated as it has been by the powerful sun, about Port Natal for instance the temperature becomes 82° or 84°.

Agulhas Current.—The peculiarities of the Lagullas current were first studied in 1777 by Major Rennel. This current is particularly strong in the winter, and still more so on the bank, and even outside of it, where it is strongest. But near the coast, on the contrary, it is very weak, a fact the knowledge of which is important to vessels entering the Indian Ocean from the Atlantic to profit by in keeping the shore on board; while, on the contrary, a vessel running westward would skirt the edge of the bank. Although this current endures through all seasons, and at all times, it is yet controlled by circumstances. Thus, a gale from West or S.W. will check its velocity, and sometimes overcome it altogether. In such cases it returns on its course with redoubled force as soon as the gale is over. At other times it continues in spite of the gale, producing of course a terrific sea. A vessel in this case would hug the land; where she would find less wind, a smoother sea, and a current by no means so strong.

The preceding remarks are very important in voyages from the Atlantic to the Indian Ocean, and *vice versâ*; we have therefore thought it advisable to mention them here.

The strength of the Lagullas current varies considerably. Sometimes it is only fifteen miles a day; at others, seventy, eighty, and even 120 miles a day.

In June, July, and August, between the meridians of 40° and 37°, and the parallels of 30° and 30½° S., the current between the coast of Africa and Madagascar generally sets W.S.W. as far as the eastern edge of the Lagullas Bank.

Off the coast of Natal it takes a S.W. direction along the land, until it reaches the edge of the bank between the meridians of 30½° and 30° E. It there acquires more strength and flows nearly W.b.S. and W.S.W. along the edge of the bank, as far as the meridian of 23° E. On this meridian the edge of the bank lies S.W., and afterwards S.S.W.¼W. to its southern extremity. The current there also changes, flowing S.W. as far as the meridian of 22° E.; from whence it flows S.W.b.S. to its southern extreme. There the current is seldom strong beyond the parallel of 36° 30′ S. lat. and the meridian of 20°. Beyond this a slight current continues flowing westward, that loses itself in the Atlantic Ocean. Afterwards the strength of the current flows round the edge of the bank to the N.W. as far as the Cape. But this N.W. current seldom attains half the velocity of that which flows S.W. along the S.E. edge of the bank.

A counter current setting eastward, formed of the waters of the

cross current of the Atlantic Ocean, is often found at the southern limit of the Lagullas current. It is most frequently met with between the parallels of 36° 30′ and 40° S. The rapidity of this current was alluded to when treating of the cross current of the Indian Ocean, which this current joins.

Variable Currents North of the Equator.—The above are the only currents which may be considered general currents of the Indian Ocean. North of the equator, in this sea, in the Molucca Channels, and in the China Sea, the periodical winds, alternate breezes, and changes of monsoon, combine to produce a great variety of currents. The direction of these currents depends on that of the winds which have produced them, on the form and character of the coasts where they are met, and on numerous other particular circumstances. We should be going beyond our limits if we entered into their details, and shall therefore confine ourselves to the facts observed in the more important of those coasts, where a certain regularity in their character and periodical return may be observed. And although in respect of the rest their study might be made with advantage, we shall merely allude to the works which treat more minutely of the navigation of the Indian Ocean.

Arabian Gulf.—North of the equator, in the Arabian Gulf or Gulf of Oman, the currents set in the direction of the wind. They are seldom strong in this extensive sea, except in August and September; when the large rivers falling into it produce, with their increased waters, a current which flows southward with a force varying from eight to thirty miles a day. This current is especially found on the parallel of 20° N. In October, when the N.E. monsoon prevails, the current takes a southerly direction. In November it increases with the monsoon, and its strength out at sea varies from eight to thirteen miles a day; it runs W.S.W. and S.W. along the coasts of Arabia and Africa between eight and thirty miles. In January it is little felt at sea, In March it is variable out at sea; and in April it runs to N.E., varying from N.N.E. to E.N.E., with a velocity similar to that during the preceding monsoon.

Currents of the Red Sea.—The currents of the Red Sea appear to be entirely regulated by the prevailing winds, submitting always to their influence. When southerly winds prevail the current flows northward, and when they are succeeded by northerly winds the current then sets southward. The force of it depends equally on that of the wind, increasing or decreasing in the same proportion. In fact, during the variables which precede the periodical winds scarcely any current is observed.

Off the port of Jeddah, in different seasons, the current attains a velocity of a mile or a mile and a half an hour. North of Jeddah it varies much during the whole year, and is entirely governed by the direction of the wind; which, when it is strong, impels it at a rate of twenty, or even forty, miles per day.

From May to October, in the northern part of the Red Sea, the level of the water is 1·9 feet lower than during the other months of the

year, the effect of the strong northerly winds, which prevail during that season over the whole extent of the sea. They produce a regular current, flowing from the Strait of Babel-Mandeb into the Gulf of Aden. This current is so rapid that even with a stiff breeze from S.W., a vessel sometimes cannot make head against it.

From October to May, when southerly winds prevail in the lower part of the Red Sea, the current changes its direction and sets rapidly to the northward. The mass of water, finding no channel, accumulates in the northern part of this sea, and the waters there attain a greater elevation than at any other period.

The temperature of the water of the Red Sea has been estimated at 86° in the Strait of Babel-Mandeb; 85° off Mocha; 83° to 81° South of Jeddah; 77° in the North part of the Red Sea; and 70° at the extremity of it.

On the coast of Arabia, from September to March, during the N.E. monsoon, the current sets strongly to the westward. In March and April it runs S.W. In June, July, and August, it turns eastward. About Aden, from April to August, it flows N.N.E. and East; and from this latter month till March it runs E.S.E. and S.E.b.E.

Persian Gulf.—From May to September a current flows into the Persian Gulf, and from September to May it sets outwards: in March and April, during the little Shermaal, the current sets Northward, so that a vessel working to windward may make good twenty or twenty-five miles in twenty-four hours.

At Ras-Jask, from September to April, the current sets Southward, and the same is found in the space between that part of the coast and the opposite coast of Arabia. This current extends as far as the parallel of 23° N., but it is very seldom at this period that the current is found setting towards the Persian Gulf.

From March to September, while Northerly winds prevail in the gulf, the current in the strait leading to it runs against the wind with so much strength, that a vessel might make twenty miles a day to windward.

From October to March vessels entering the Persian Gulf or leaving it, should keep near the Persian coast. From March to September it is more advantageous to keep mid-channel or on the Arabian coast.

In October on the coast of Persia, with the N.E. monsoon, the current flows Southward till March; in April it changes with the S.W. monsoon, and flows Northward during the six following months. When, however, the S.W. monsoon is at its height, the current sets rapidly to the Eastward along the Persian coast.

The Indus.—The Indus, the mouth of which is situated in the N.E. angle of the Arabian Gulf, discharges a considerable volume of water into this sea, especially from July to September. At this period it produces a current setting to the Southward at first, and which, spreading as it gains distance, extends its Western and Eastern borders to S.S.W. and S.E. The current of this river, which is very narrow at its source, and near the South part af the delta attains a breadth of 240 miles, after a course of 300 miles; its strength gradually decreases

as it flows seaward. At that distance it is but small, and the current becomes lost in the ocean.

West Coast of Hindostan.—In November the currents are generally weak and variable on the West coast of Hindostan, except near Anjenga, and from this point to Cape Comorin, a place where strong S.E. currents are often found. On this same portion of the coast between Anjenga and Cape Comorin, a Northerly current prevails during January.

From November to March, the period of the fine season, (N.E. monsoon,) a current is rarely found on this coast.

In March and April, when N.W. winds are strong, they produce a small South-Easterly set along the coast; otherwise no current exists.

In May a current flows along the whole West coast of Hindostan in a Southerly direction, at the rate of five to seven miles a day, increasing near Anjenga and Cape Comorin. Sometimes, however, in May and June it is scarcely perceptible, and sometimes there is none. In this season, when the wind veers to the Southward, the current takes a Northerly direction. This always occurs on the Northern part of the coast, near Bombay. In the same months the current out at sea generally sets E.N.E.

In July, when the heavy rains have swollen the rivers, the current sets rapidly to the Southward along the coast.

Nevertheless, at the entrance of Bombay, we rarely find a Southerly current; that occasioned by the discharge from the rivers generally runs to the Westward, and is brought back by the tide. South of Bombay the current sets Southward at the rate of ten or fifteen miles a day, and sometimes as much as eighteen or twenty miles. These currents, which are also found during August and September, are more rapid between Cochin and Cape Comorin. To the middle of October they vary from twenty to thirty miles per day. When the rivers overflow (in June and July) the current generally sets off the coast; though in some cases they are directed towards it.

Between Calicut and Anjenga, in the end of September and beginning of November, a S.E. or E.S.E. current is found setting at the rate of a mile or a mile and a half per hour.

(To be continued.)

Herbert's Floating Beacons.

Sir,—As you have taken much interest in the introduction of Herbert's improved buoys, I feel assured that it will give you satisfaction to know that in a recent application the most gratifying proof of its efficiency has been received from Lieut. Parks, R.N., Marine Surveyor of the port of Liverpool, which I enclose for your publication, if you

think it of sufficient importance, to confirm your recommendation of it.

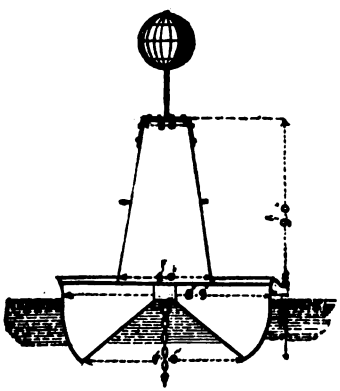
I am, &c.,

AMB. H. RENTON.

To the Editor of the Nautical Magazine.

Liverpool, April 8th, 1857.

Dear Sir,—In reply to your inquiries of the 19th ult., I have to inform you that your buoy has now been afloat in its station, as Fairway Buoy of the Queen's Channel, for one month, during which time we have had some very heavy weather, and I am happy to be able to state, from my own personal observations, as well as from reports I receive from others, that it answers its purpose as an efficient beacon; and from preserving under all circumstances its erect position, is much superior to buoys of the ordinary form. Of its general steadiness you will judge when I inform you that two persons have been able to stand upon it and take sextant observations for determining its position, their weight having scarcely any apparent effect upon its equilibrium.



Displacement 53 *cwt.*

Yours truly,

MURRAY T. PARKS.

THE KOORIA MOORIA GUANO ISLANDS.

The terms of the arrangement agreed upon between the Liverpool Shipowners' Association and Ord, Hindson, and Hayes, of Liverpool, the lessees under government of the guano islands in Kooria Mooria Bay, are:—

1st.—The trade is to be confined to importation into the United Kingdom and British Colonies, and to be open to all parties on payment of £1 per ton, and the royalty payable to government of 2s. per ton the first year, and 4s. per ton the second and subsequent years.

2nd.—The payment to be on the quantity of the cargo delivered at the port of discharge; but in order to meet cases of non-arrival or jettison, and on the principle of the party taking the guano bearing

the risk of the cargo, the party, in the event of non-arrival or jettison, to be liable to pay on a tonnage of one-third in addition to the ship's registered tonnage, unless it be shown by the certificate of the lessee's superintendant at the islands, or otherwise, that the vessel, from leakage or other accident, could only load a part cargo, and then the payment to be made on the quantity loaded.

3rd.—Licences to be only granted through the lessees at Liverpool; but vessels will be allowed to load without licences, paying at the islands for the cargo and royalty in specie or approved bills on British or colonial banks.

4th.—Ships to be entitled to claim to be loaded according to priority of arrival at the islands, and being ready to receive cargo with a competent number of efficient men, consisting of her crew and others (if necessary), for the purpose of loading, being not less than three men to every 100 tons of registered tonnage.

5th.—The lessees not to be obliged to find stages and apparatus for getting cargo, but if stages or other facilities are provided by the lessees, the ship first on turn to have the option of using the same or her own means of loading; but an uniform charge for use of same to be made to all alike if used.

6th.—All parties to be treated alike, without partiality to any, upon the basis of these terms, and licences not to be refused, provided security satisfactory to the lessees be offered by the party applying for the licence.

7th.—All questions of difference arising at the islands between the parties loading or coming to load guano and the representatives of the lessees there, to be referred to and decided upon by her Majesty's officer in command at the island, and his decision to be final.

[These islands are noticed in Capt. Owen's remarks in our April number.—ED.]

TAKING TIME BY THE FORE-LOCK.

January 27th, 1857. The following despatch was received here this morning. When it is considered that the difference in time between St. John's, Newfoundland, and this city *is little over one hour*, and that the message was, owing to the use of different instruments, and the working of separate electric circuits, rewritten no less than *six times*, the fact that it was received just one hour *before* it was sent, may be understood; and show the wonderful expedition in the transmission of intelligence from this to Europe when the Atlantic line is completed:—

St. John's, (N. F.,) Tuesday, 11 a.m. January 27th.

Cyrus W. Field, National Hotel, Washington,—I think you will approve of the reasons in favour of Trinity Bay for the landing of the Atlantic cable.

A. SHEA.

P.S. This message was received at the House Printing Telegraph office, Washington, D. C., at ten o'clock a.m.

J. L. ELLIOTT, *Operator.*

The distance from St. John's to Washington is nineteen hundred and sixty miles by the route of the telegraph.

THE MADRID.—Our attention has been called to a letter in the *Shipping and Mercantile Gazette* of the 22nd May, alluding to the remarks in the *Nautical* of that month respecting the loss of this vessel. We do not, however, find that any single statement advanced in those remarks is either refuted by the writer of it, or which requires any alteration whatever. As to the alteration of the chart off Cape Hombre, so justly alluded to by the writer of that letter, we can assure him that the author of those remarks had nothing whatever to do with it. And we refer him in respect of that alteration to the distance of the rock off Cape Hombre, as it is represented in the new plan named *Ria de Vigo*, since published by the Hydrographical Office. Tofiño we apprehend, as stated in the remarks, was right.

TESTIMONIALS—*by the Board of Trade.*

On the 6th of January, 1857, in lat. 31° 12′ N., long. 62° 30′ W., the American barque *Hamilton*, of Salem, Massachusetts, saw a dismasted vessel to leeward about four miles distant, and immediately bore up, and found her to be the *Thetis* of London, Capt. Boyle, waterlogged and dismasted. It was blowing very hard, with a heavy sea, that it was impossible to render assistance. After remaining three days by the vessel, and the weather having moderated, Captain Webster succeeded in rescuing the master, first and second mates, and thirteen of the crew; three of the crew were drowned, and four died from starvation. The men were perfectly helpless when taken on board. They were treated with very great kindness, and landed safely at New York, where the Consul paid for the subsistence of the crew, and forwarded particulars to the Board of Trade, who have ordered a handsome Gold Chronometer for Capt. Webster, with a suitable inscription; £5 each to the first and second mates, and £2 to each of the crew, who were on short allowance of provisions for several days, owing to the large increase in their numbers.

The crew of the *John Garrow*, including the master's wife and child, were rescued by the American ship *E. Z.*, and carried into New York, having been subsisted and kindly treated for twenty-four days, the American Captain giving up his berth to Mrs. Dyer. The Board

of Trade have given directions to reimburse the owner of the *E. Z.*, and have presented Capt. Hodges with a handsome Telescope, with a suitable inscription.

The Board of Trade have directed that a Telescope, bearing a suitable inscription, should be presented to Lieut. Valence, of the French frigate *L'Eyerie*, and £50 to the petty officers and crew, for the assistance rendered to the British barque *Ralph Thompson*, whereby the whole of the crew were rescued from a watery grave, after repeated attempts on three successive days to board the sinking vessel. From the representations of her Britannic Majesty's Minister at Paris to the Foreign Office, the Earl of Clarendon has directed that a sword should be presented to Capt. Coreil, for his exertions and praise-worthy conduct on this occasion.

New Books.

THE DISCOVERY OF THE NORTH-WEST PASSAGE *by H.M.S. Investigator, Captain R. McClure.* 1850, 1851, 1852, 1853, 1854. *Edited by Captain Sherard Osborn, &c., &c.*

A PERSONAL NARRATIVE OF THE DISCOVERY OF THE NORTH-WEST PASSAGE, *with Numerous Incidents of Travel and Adventure during nearly Five Years continuous Service in the Arctic Regions, while in Search of the Expedition under Sir John Franklin. By Alex. Armstrong, M.D., R.N.*

More than three centuries have passed away since the first attempt was made to force a ship through the icy channels between Davis and Behring Straits—from the Atlantic to the Pacific Ocean. However, with the exception of that of Captain Cook, nearly all these efforts have been made from the eastward, from an opinion that, the current flowing from the westward, in the event of a ship being beset and fixed in the ice, she would at least drift out of danger into the open sea of the Atlantic.

The late distinguished Admiral Sir Edward Parry and numerous modern polar navigators were firmly of this opinion. But after the loss of Sir John Franklin and his 120 companions in H.M.S. *Erebus* and *Terror*, and well equipped expeditions having failed to find them, or to penetrate as far as Barrow Strait, at length the Government directed two ships—the *Enterprise* and *Investigator*—under the command of Captain Collinson and Commander R. McClure, to proceed to Behring Strait,—where there were depôts of provisions, &c., and a vessel (the *Plover*) to fall back on,—and, entering the ice there, to push their way along the coast of North America,—a coast already known and surveyed by Sir John Franklin, Sir George Back, and Messrs. Dease and Simpson of the H.B. Co's service, and explored,—in the hope of finding a navigable passage for the ships to Barrow Strait; and another expedition being sent to co-operate with those ships from the eastward, it was confidently hoped they would finally unravel the mystery of Franklin's disappearance. But no! that was not to be now!

In this laudable and national undertaking, the so-called North-West Passage was discovered by Commander McClure in the *Investigator*. The narrative of this interesting voyage now before us was drawn up at the request

of McClure by his friend Captain Sherard Osborn, R.N., while he was again called to serve in the ordinary line of his profession, in the command of H.M.S. *Esk*. The tale of McClure's proceedings, his perseverance, hairbreadth escapes, and endurance was told in Captain Osborn's pleasant and agreeable style, and, although unavoidably late, created no little sensation in the public mind, which, always won by gallant deeds unostentatiously related, willingly yielded the arctic voyagers unqualified praise.

The House of Commons, animated by a similar feeling, voted a reward of £10,000 to the officers and crew of the *Investigator;* and a medal was ultimately granted by Government to all those who had been employed in arctic expeditions. Moreover, that nothing might be left undone to grace the achievement to which Great Britain had so long aspired, McClure received the honour of knighthood.

Early in April, 1857, when all allusion to the subject had nearly passed away, another account of the same expedition appears, "with the sanction of the Lords Commissioners of the Admiralty, and dedicated to H.R.H. Prince Albert," by "Alexander Armstrong, M.D., Surgeon and Naturalist of the *Investigator*."

This work bears ample evidence that it is the production of the well stored mind of an officer who is quick to perceive and fully able to describe whatever passed before him. Accomplished and scientific, Dr. Armstrong has contributed many new facts to our general information, and which it is likely might never have been presented to our notice had he not recorded them. Many of these might be quoted, but our space will not admit them; and, considering that they would shed no additional lustre on the discovery of the N.W. passage, we shall leave them for the perusal of those who like to follow the adventures of the zealous working crew amidst their many trials and dangers; trials, indeed, that have rarely, if ever, been surpassed—borne with a religious composure and surmounted with stern determination.

We could have hoped that the remembrance of such fearful escapes as the *Investigators* underwent—impossible to be realized by any but those who experienced them—would have tempered the memory of past events, and only left the triumph of success. Yet here, with every appearance of impartiality, no opportunity is suffered to escape where blame can be imputed to the acts or decision of his Captain. He who attentively peruses Dr. Armstrong's book cannot fail to conclude that in the opinion of the author, Commander McClure's indecision on the most important occasions utterly frustrated the completion of the passage in the ship. Thus, we read at page 440,—"I am firmly of opinion that our tardiness on these several occasions, where an easterly advance, however trifling, was of vital consequence, and when opportunities occurred for making it, exercised a fatal influence on the voyage of the *Investigator*."

Again, at page 465, alluding to Mercy Bay, he says,—"The bay subsequently received the name of Mercy, in remembrance of the perils we had escaped; but some amongst us not inappropriately said, it ought to have been so called from the fact that it would have been a *mercy had we never entered it*."

It seems that Mr. Court, the Second-Master, saw open water from a high point on the 7th October: on which it is remarked,—"But his progress was entirely cut off by an expanse of open water, extending from the shore to the northward and eastward as far as he could see. The open water he estimated at eleven miles, with a watery sky beyond it, and no trace of ice to be seen in that direction."—page 472.

"Had we taken advantage of the easterly current, and entered the pack, we should then have been on our way to England instead of wintering in Mercy bay."—page 473.

"Captain McClure had been fully informed by me on many former occasions of the state of the men, &c." "It had no result."—page 544.

"At 5h. 30m. p.m., all being mustered at divisions on deck, Captain McClure, the senior Lieutenant, and myself inspected the ship for the last time. A few words, not complimentary, were addressed to the men, and all were piped to take their places at their respective sledges, then on the ice."—page 576.

On leaving, he adds,—"All, of course were under the orders of Captain McClure, who pioneered the way by walking ahead. We (the officers) felt it our duty, rather than avail ourselves of our privilege of merely directing the sledges, to bestow all our strength on the drag ropes."—page 577.

The foregoing extracts will suffice to show the axioms on which this well and pleasingly written work has been composed. In no instance do we find that spirit of sociability and good fellowship which pervaded all, or nearly all, classes of former expeditions. It is true they had their Christmas and New Year's dinners, and the crew were instructed during the long dark winters; but we look in vain for any of those cheering attempts—so successfully made by their predecessors in exploration—to divert the attention of the men from a too serious contemplation of their own discomforts. Neither can we detect any commendations—any of those expressions of approbation called forth in most generous minds by the performance of gallant deeds. Individual names, with rare exceptions, are seldom mentioned; but every act or important decision is invariably coupled with "we" or "some of us determined," &c., thus, in a measure deteriorating from the merits of the officers and especially the Captain, whose experience in former polar and south polar expeditions—apart from the boldness of the present hazardous navigation, evidently demanded some acknowledgement from one in the author's position in the ship. It is much to be regretted that, with or without reason, having no responsibility, the author should cast reflections on his superior officer in the execution of his duty—on whose prudence and judgment the preservation of all hands chiefly depended. Those who know by experience the real meaning of the term—responsibility, will sympathize with Commander McClure as being the proper judge of the correctness of his own resolves for the safety of his ship and all on board, and with full admiration of his conduct amidst those dangers which he so unflinchingly passed through. It is impossible not to regret the thinly veiled egotism and disparaging spirit which unhappily influenced the narrator in this otherwise most interesting book,—which has so many recommendations to those who delight in Arctic Story.

French Settlement in New Caledonia.

In our volume for 1856 we inserted some very interesting particulars from the report of Capt. Tardy de Montravel on New Caledonia, since which it has been settled by the French. We regret to find that the treacherous character of the natives seems not to have been sufficiently guarded against, the result of which is as follows.

The schooner *Black Dog* arrived at Sydney on the 3rd of February from New Caledonia, bringing intelligence of a shocking massacre of the French colonists by the natives. Eleven Europeans and fourteen or fifteen Kanakas in their service had been murdered. We extract from the Sydney papers some particulars of this frightful catastrophe. The *Sydney Morning Herald* gives the following account:

"The township of Morari is distant from Port de France about seven miles,

at which place eleven Frenchmen and a number of natives from the Sandwich Islands were stationed for the purpose of obtaining sandal-wood. About the 20th of January, the New Caledonia natives made an attack on the settlement, and savagely murdered all the inhabitants; so exterminating was their onslaught, that not a single individual was left to tell the particulars of these dreadful murders. The bodies of eleven white men and fourteen or fifteen islanders were discovered accidentally by parties proceeding from the township. Among the victims of this savage attack is M. Berard, attached to the firm of Vial d'Aram & Co., of this city, and who was formerly an officer in the French navy. The *Julia Percy*, schooner, passed by the scene of the disaster during the consummation of this fearful tragedy, and observed an unusual movement on shore, on approaching which the natives were seen to retire, but she was compelled to stand off again."

We now give the account of the *Sydney Empire*.

"About seven miles from Port au France, Mons. Berard, a partner in the firm of Vial d'Aram, Milliere, & Co., of this city, had established a sugar plantation, at a place called Morari. This establishment was in full working efficiency, and a large number of persons were employed on it. Many of the natives were received by the unsuspecting planters on the most friendly terms. On the 19th of January one of M. Berard's servants was surprised by one of these natives, and killed on the spot with a tomahawk. Two New Caledonians hastened to M. Berard, and informed him of what had happened; that gentleman immediately set out to ascertain the truth of the report; but on his way he was met by a native chief, who had been living on the most friendly terms with him for some time past, dining with him nearly every day, and by this chief he was shot dead. The work of blood appears to have now spread throughout the plantation, for the bodies of several persons in the service of M. Berard were subsequently found, all of whom had been murdered. The names of the victims are, Laurent, Senechal, Queret, Boterel, Jean, Michel, and Magastre (two brothers). Another brother of the last-named unfortunate man, being on his way from the port to Morari, escaped. A number of Sandwich Islanders, who were on work on M. Berard's plantation, more than twelve, it is said, were also ruthlessly murdered.

"Much dissatisfaction is expressed by the friends of the sufferers that a French frigate, with two hundred men on board, should have left New Caledonia when the island was in so dangerous a state to the French residents, leaving the colonists unprotected. The discovery was made by a small body of troops, fifty men, which had been hastily despatched to the spot from headquarters in consequence of an intimation from the French missionaries that some such attack was to be apprehended. Unhappily they arrived too late. The cause of this atrocity can only be guessed at. It appears clear that there was nothing in the conduct of M. Berard and his white companions which could palliate it. The natives were treated by them with great kindness, and expressed for them the warmest friendship. The crime was consummated by the natives approaching the settlers in small parties, with their accustomed pretences of friendship, until a large party had been collected, when the work of murder was commenced in cold blood. It was not a fight, for the settlers were set upon when, without arms in their hands, they were engaged in their ordinary avocations. It was a mere butchery, like that of the unfortunate *Gazelle's* crew by the Woodlark islanders.

"As the bodies were not eaten, (although the natives of New Caledonia are cannibals,) the act was one of vengeance. In all probability the New Caledonians were displeased with the introduction of natives from Vate or Sandwich Island, (one of the New Hebrides,) whom they look upon with hostile feelings. It may be, too, that the fact of the settlement having been made in this quarter with the permission of the French (local) government,

instead of under the authority of the native chiefs, induced the latter to slaughter the settlers.

"It is certain that this act is not the result of any conspiracy among the natives, for only one tribe is concerned in it. A general conspiracy or union of any kind is impossible among the New Caledonians, for their tribes are hostile to each other. The bulk of them are friendly towards French rule and settlement, and there is a native force (about eighty) along with the fifty soldiers who are on or near the scene of the massacre. It will be difficult to follow and punish the murderers, for the country is mountainous and heavily timbered, affording many places for concealment and resistance, and the only force at present on the island is about 140 soldiers, to which may be added between 200 and 300 men belonging to the frigate stationed there. A large force will doubtless be procured from Tahiti.

"The *Pocklington* arrived at Sydney on the 5th from Port de France, after a quick passage of six and a half days. Capt. Lewis confirms the reports respecting the attack of the natives on the settlement of Morari, and also states that they had possessed themselves of fifteen months' provisions, which had been stored there, together with all the arms and a ton and a half of gunpowder. Fifty of the military had been despatched from Port de France by sea, but on attempting to land were fired on by the natives, who effectually drove them off.

"Capt. Lewis believes the disturbance has arisen from a refusal of the French settlers to pay the same price as the English."—*Daily News.*

CAPTURE OF A SLAVER.—From Kingston, Jamaica, we learn that on the 16 ult. a schooner—evidently American—was towed into port by H.M.B. *Arab*, Comdr. R. B. Pearse. Lieut. Trevenon, on boarding the schooner, found that she was crammed with Africans, male and female, to the number of 373, no less than 127 having fallen victims to the horrors of the middle passage during a voyage of twenty-nine days. The *Kingston Free Press* thus describes the appearance of the "cargo:"—

"I have just returned from Port Augusta, from among some of the most miserable specimens of humanity it has ever been my ill-fortune to witness. They were walking tangible spectres—youths not exceeding 16 or 17, so emaciated and filthy that in many instances among the unhappy wretches you would be unable to recognize the human being. Some of them on landing were quite unable to walk, and fell bodily, as if paralyzed, in attempting to do so. I do not think I shall ever forget their wonderful energy, or sudden expression of delight, when made to understand, through a soldier of the 2nd West India Regiment, that they were free. Some of them, weak and exhausted as they were, positively tried to dance, while all of them yelled and clapped their hands, and the women laughed joyously. They had been fifty-three days in almost one position, and the great difficulty was to restrain them now from eating and drinking. They rush at their food, and gulp the water even far more voraciously than ever I saw a pack of hounds after a long run."

NOT USING THE LEAD.—About a fortnight since an inquiry, instituted by the Board of Trade, was held in St. George's Hall, Liverpool, before Mr. T. S. Mansfield, the stipendiary magistrate and Capt. Walker, R.N., into the circumstances attending the total loss of the barque *Emperor*, Capt. Mitchell, and the grounding of the ship *Lady Ebrington*, Capt. Hulman, on the 29th of March, on the Blackwater Bank, on the coast of Ireland. In neither case had the lead been used between the time the vessels left Liverpool, on the 28th of March, and a few minutes before they struck on the bank. Capt. Hulman however succeeded in getting his ship off the bank with the next tide, while

the barque was a total wreck. At the termination of the inquiries the master's certificates were withdrawn from Capt. Hulman and Capt. Mitchell, for the purpose of being forwarded to the Board of Trade. On Saturday, at the Police Court, Mr. Mansfield, addressing Mr. Clarke Aspinall, the solicitor for Capt. Hulman, said:—

Their Lordships the Commissioners of the Board of Trade, considering the successful efforts made by Capt. Hulman to save his ship, had thought that the justice of the case had been met by the temporary withdrawal of his certificate, which was now returned. As to the case of the *Lady Ebrington*, however, he said, (addressing Mr. Bremner, the solicitor for Capt. Mitchell,) their lordships felt compelled to suspend the certificate for six months.

Preservation of Life from Shipwreck.

At the last meeting of the Royal National Lifeboat Institution:—

A reward of £7 17s. was assigned to the crew of the life-boat at Newbiggin for rescuing the crew of six men of the schooner *Catherine*, of Ipswich, on the rocks near Blyth. The crew had taken to the ship's boat; in which they were found in a state of exhaustion.

The Cullercoats life-boat, which belongs to the Society, had also gone off to the assistance of two fishing cobles, and succeeded, during a heavy gale, in bringing them, with their crews, in safety into harbour

A life-boat called the *B. Wood*, the gift of a generous lady named Wood to the institution, was said to have given much satisfaction to the boatmen, who had recently tried the boat off Hornsea, near Hull, where she is permanently stationed. These three life-boats are on Mr. J. Peake's plan.

A reward of £6 to the crew of the life-boat at Cemlyn, on the Anglesey coast, for putting off to rescue the crew of the barque *Ellen Oliver*, of Liverpool,—from Orleans to that port,—on the Skerries Rocks. On reaching the wreck, she was found nearly on her beam-ends, and filling with water. The life-boat took some of the men from the wreck to the island; the ship taken in tow to Liverpool.

The silver medal and £2 each were voted to James Pearse, Thomas Pearse, and John Jones, pilots, and to George Clark, seaman, for saving the crew of three out of four men of the schooner *Trevaunance*, of St. Agnes, which, during thick weather and a dark night, was wrecked off Porthcawl, Glamorgan.

A reward of £6 to three men for their services to the Master and a lad of the smack *Ann*, of Amlwch, which, during a heavy gale of wind, had been wrecked near Rhyl. The former, however, died from exhaustion soon after he was brought on shore.

A reward of £6 to Wm. Church, coast-guardsman, and four fishermen, for rescuing two fishermen who, during squally weather, had been capsized from their boat off Malin Head.

A reward of £2 was also granted to John M'Laughlin for wading into the surf, at the risk of his life, to the rescue of one out of six persons who had been capsized from their boat off Port Redford, on the coast of Donegal. The boat had proceeded but a short distance from the shore, when several successive seas struck her, the last one completely overturning her, with five of her crew underneath, who thus unfortunately perished. The other man was thrown into the surf, where M'Laughlin rushed to his rescue, and succeeded, when life was almost extinct, in saving him. M'Laughlin was aided in his noble act by another man, who held him by the skirts of his coat. This man received 10s. from the Society for his services.

Various other rewards were granted to parties who had meritoriously exerted themselves in saving life from wrecks.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JULY, 1857.

Macao.

The spacious and beautiful bay of Canton contains several large and thickly populated islands. At the South-Eastern extreme of one of these, on a small peninsula, stands the town of Macao, most favourably situated, and the first European establihsment formed in that part of the world. It was founded by the Portuguese in 1579, and is connected with an historical event of considerable importance in Chinese history.

About the middle of the sixteenth century, the settlements on the coast of China were ravaged by a pirate named Van-Foo, celebrated in the annals of the East, who threatened even the foundation of the Imperial government. Lia-Sing, the then reigning prince of the Mantchou dynasty, (the Taï-Tsing or 22nd,) finding his navy destroyed and himself powerless against the attacks of the formidable Van-Foo, begged the assistance of the Portuguese, the only nation which at that time had ships of war in those parts. Dom Alvarez de Lerida, the commander of the Portuguese forces, met the request of the Emperor by hastening to his assistance; and defeating the pirate Van-Foo, took him prisoner, and sent him to Lisbon.

The Emperor Lia-Sing, in gratitude for this important service, immediately conceded to the Portuguese the peninsula of Macao, along with the right of trade, and the privilege of establishing factories in three of the most important ports of the Celestial empire. At that early period these advantages were highly valued; the Por-

tuguese being then the first maritime nation in the world, were gradually extending their possessions under the vigorous impulse of the celebrated Prince Henry, and the expeditions of Bartholomew Diaz, Vasco de Gama, Cabral, and especially the talented Albuquerque, had then rendered Portugal the mistress of the seas.

Albuquerque, after having secured for his country, a power until then unknown in India, by extending the Portuguese dominion to Malabar, Ceylon, the Sunda Isles, the peninsula of Malacca, as well as the islands in the Persian Gulf, died at Goa, in 1515, in the zenith of his glory, just as he was preparing to return to Europe, but disgusted with the intrigues which had troubled him in the latter part of his career.

Conquests like these, by enriching the crown of Portugal, encouraged the desire for foreign enterprise, and the establishment at Macao soon became considerably enlarged. The Governor, supported by a strong garrison and a formidable maritime force, commanded respect, and on several occasions severely chastised those who had ill-treated foreigners. Thus protected, and under treaties concluded with the crown of Portugal, the different maritime nations of Europe established their factories at Macao, and in 1675 the business transacted there produced 100 millions of francs, which was no mean sum for those days. The French factory was one of the most considerable, the importance of which may be estimated by the position it still occupies. One of the last agents of this establishment was the celebrated orientalist De Guignes, who died in 1811, and whose memory is still cherished with respect.

Besides their factories, several European powers, especially the French, had scientific establishments at Macao, devoted to the study of the Eastern languages; the students acting as government interpreters of the Chinese language, remaining there several years. In 1778, the power of the Portuguese, who for nearly a century had monopolized the trade of China, Japan, Cochin-China, and the empire of Anan, began to decline; other nations, especially England, having entered into active competition with them, so that in the beginning of the eighteenth century they lost the high position which they had occupied. The establishment of Macao will always be theirs, but it is now the mere shadow of its former self, and it has even decreased since the formation of the English establishment at Hong-Kong, resulting from the war of 1840.

Such is Macao in the present day of February, 1857, although of peculiar interest in an historical point of view. With the exception of the English embassy, removed to Hong-Kong, all the European embassies continue there. It is the centre of foreign diplomacy, and the general rendezvous for the agents of the great trading companies.

The Portuguese flag graces the governor's palace; but the present garrison is insufficient to command the Chinese population and its detestable ways; and hence the principal part of the ruling authority is in the hands of a mandarin. It is said that the Portuguese intend

to remedy this state of affairs, and that the garrison is to be increased; the existing fortifications are about to be repaired, and the great wall, separating the Chinese territories from their possessions, is to be rebuilt. These intentions deserve our encouragement; their realization will not prove expensive, and will be very advantageous to all the foreign population.

The appearance of Macao, from the harbour, is most attractive. Splendid buildings are seen as a vast amphitheatre, amongst which is the convent of Guia, the residence of the bishop, two convents, the governor's palace, and the houses of resident foreigners. Since the insurrections in Canton, Macao has remained quiet. The Chinese population are restless, but quietness has been preserved by the presence of ships of war, anchored in the roadstead, and by the numerous guards which are continually landing.—*Moniteur.*

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from p. 327.)

Laccadives.—About the Laccadives, during the S.W. monsoon, as we approach these islands we find Southerly and S.W. currents, particularly in March. Between the islands their direction is S.S.W.. In the channel separating them from the Malabar coast they set about S.S.E.

In the nine degrees channel the current generally runs S.W., and rarely to the Northward. In February, March, and April, its direction is S.S.E.

The rate of the current during the S.W. monsoon between the Laccadives and the coast, varies from twenty to twenty-six miles a day. Amongst the islands it is from eighteen to twenty-two miles a day.

From forty to sixty leagues Westward in the offing the currents flow West and W.S.W. at the rate of eight to eleven miles a day.

M. d'Après states that the currents always flow Westward everywhere between the Laccadives and the coast of Malabar, and that near these islands they set to the Southward, during the S.W. monsoon, at a rate varying from fifteen to thirty miles a day. Nevertheless, between the islands we sometimes find a Northerly current at the rate of eight or ten miles a day.

Maldives.—It has been observed that about the Maldives the current generally sets more to the Eastward than in any other direction: this, however, is modified by local causes.

When the S.W. monsoon prevails North of the equator, that is, during June, July, and August, the current sets Easterly in the vicinity of the North Atoll, while at the same time generally in July

and August, when the S.E. trade wind blows South of the equator, the current sets W.N.W. near the South part of the group in the equatorial channel and about the South Atoll.

To the Eastward of the North Atoll, in March and April it generally runs West, and, on the contrary, near the South Atoll, it sets E.N.E. from the equator to the parallel of 4° or 5° South latitude. This current often flows at the rate of fifty and sixty-five miles a day: but sometimes it is feeble and variable. In the same months, between the equator and 8° or 9° North latitude, the current sets S.W. In May it runs strong to the Eastward near the equator, and sometimes attains a rate varying from fifty to seventy miles a day near the South Atoll, between the parallels of 2° N. and 2° S. latitude.

In the equatorial channel and in the latitude of the South Atoll, from October to January the current flows Eastward; while it flows Westward with great force at the same time between the parallels of 3° and 5° N. lat., and between the Maldives and Ceylon. In the islands North of the equator at this period the current runs S.W., and in those situated South of the line it runs South and S.S.E.

Thus it is evident that for the most part the currents are governed by the monsoons from N.E. and N.W., as well as those from S.W. and S.E., which prevail at the same period to the North and South of these islands.

During the N.E. monsoon, on the meridian of Point de Galle, and especially in November and December the current is found setting at the rate of thirty and thirty-five miles; but decreasing in rapidity as it nears the equator.

Gulf of Manar.—Throughout the Gulf of Manar the currents are uncertain during the N.E. monsoon; sometimes, however, they have been found to run to the S.W. at a rate of eighteen or twenty miles. From May to September, during the S.W. monsoon, a current runs into the gulf at the rate of eight miles a day; running to the Northward it follows the direction of the coasts, and sets into the bay of Palk, to make its exit between the points Pedro and Calymere.

Ceylon.—On the East coast of Ceylon, during the N.E. monsoon, from the middle of September to February, and especially in October and November, a strong current sets to the Southward along the coast; rounding the South coast it assumes a Westerly direction as far as Point de Galle, and sometimes as far as Colombo. Its mean rate has been estimated from forty to forty-eight miles a day; it has been sometimes found to amount to ninety-four miles, under certain circumstances; but at others it is weak enough.

During the same N.E. monsoon, on the Western coast of Ceylon the currents are very variable. Sometimes a fresh N.N.E. wind blowing for a day or two produces a tolerably strong current setting Northward along the coast. It would appear that the current in this case is only a continuation of that which on the East coast takes a Southerly direction, and on the South coast of the island flowing Westward as just observed, and which near Point de Galle again makes towards the West coast.

During the S.W. monsoon the current we have been considering turns, and on the South and East coasts takes directions nearly opposite to those above mentioned; that is, it flows Eastward on the South coast of Ceylon, and Northward on the Eastern coast. Its rapidity is then by no means so great as during the other monsoon, at least near the coasts of the island, and it decreases in proportion as it is near the shore. Off the N.E. part of the island, however, it has been estimated at from ten to twenty miles a day.

From May to September no current is found on the Eastern coast of the island; while out at sea it sets strongly to N.N.E. and N.N.W. When the Westerly winds are in full force, Nichelson says that the currents cease near the land and for a distance of fifteen or eighteen miles from it.

Gulf of Bengal.—In the Gulf of Bengal the current depends entirely on the monsoons; during the N.E. monsoon it flows Southward and S.W., and during the S.W. monsoon it flows Northward.

In April the general movement of the waters to the North and N.E. commences over the whole surface of the gulf, and continues till the beginning or middle of October. In April and May the current attains its greatest force, its rate varying from ten to twenty miles a day.

In the middle of the gulf, during March and April, there is but little current, and what little there is is variable; between the Coromandel coast and the Nicobars, as well as at the entrance of the Strait of Malacca, it frequently sets S.W. In the Northern part of the Gulf of Bengal the current often flows Southerly in March; but in April it oftener flows Northerly.

During the S.W. monsoon, in the Eastern part of the gulf, and near the Strait of Malacca, a current is often found setting to the South ward, like that near the Malabar coast.

At the distance of forty or fifty leagues from the coasts, in the middle of the Gulf of Bengal, the S.W. current begins regularly about the middle of October or beginning of November, about the time when the N.E. monsoon is well established. Before this period the current is variable; we find it setting S.S.W. and even N.W. or somewhere between these two directions.

In January this current loses strength, and in February it entirely ceases, in the middle of the gulf and perhaps on the coasts, where if it still exists it runs Northward and N.W.

West Coast of the Gulf of Bengal.—On the coast of Coromandel, as on the coasts of Golconda and Orixa, the current begins flowing Northward about the end of January or beginning of February; its rate increasing in April and May, when the South wind prevails with great regularity. After May it fails, and ceases according to the monsoon in August or September. Sometimes it is met with as late as the middle of October, and during the other months it generally runs Southerly. The Northerly direction of the current along the coast of Coromandel and all the Eastern coast of Hindostan, from Ceylon to Balasore, varies between North and N.E., and sometimes

even E.N.E. In August the current from the Ganges is strong, and extends as far as the coast of Coromandel, contributing to modify the current flowing Northward, and also decreasing it. During the S.W. monsoon the rate of the current varies between a mile and a mile and a half an hour. Towards the middle of October the current assumes a Southerly direction along the Eastern coast of Hindostan. In November and December it attains the rate of one mile an hour, setting S.S.W. From the beginning of December to January it is influenced by the winds, and runs Southward at the rate of two or two and a half miles an hour. In March it sometimes takes a Northerly direction, but most frequently flows Southward during this month.

East Coast of the Gulf of Bengal.—On the Eastern shore of the Gulf of Bengal, and near the Strait of Malacca, during the S.W. monsoon, the current sometimes sets to the Southward as above stated.

During the N.E. monsoon, near the Nicobar Islands, and also between these islands and that of Junkseylon, a strong N.W. current is found, and sometimes setting North. On the coast between Cape Negrais and the Bay of Chittagong, in both monsoons, the current is seldom strong, and sometimes tides are experienced. However, from the middle of December to May a Southerly current is sometimes found there; but from June to September it runs Northward.

Throughout the Bay of Bengal, in the month of December, there are no currents but those produced by the tide, which prevail during the greater part of the year. From September to November, however, on the coast of Bengal, a current is often found setting between W.N.W. and W.S.W.

West Coast of Sumatra.—On the West coast of Sumatra the current is generally weak, not more than a half or three quarters of a mile an hour.

It is stated that from October to May it follows the S.E. monsoon, and the N.W. from May to October. Forest, however, shows, that during the S.W. monsoon the mass of water driven towards the West coast of Sumatra is divided on reaching Cape Achem into two branches, one flowing to N.E., the other to S.E., along the coast. It is rarely found running North on this coast of the island, but most frequently S.E.

After the month of August, near Achem, and along the S.W. coast of Sumatra, as well as on the South coast of Java, the current sets strongly to the Eastward. At Achem, after the month of December, it sets from the Strait of Malacca to the Westward, while near the S.W. coast of Sumatra, it sets Southward.

Sunda Isles.—The currents are very rapid in the narrow channels between the Sunda Islands. They generally follow the direction of the prevailing winds, and are greatly influenced by the tides. Consequently they cannot be described with any certainty. In the Strait of Sunda, however, from January to April, the current flows to the Eastward, and during the rest of the year it takes a Westerly direction. Sometimes it runs at the rate of three miles and a half an hour. Between the Sunda Isles and the coast of New Holland the current sets

to the Eastward from November to April, while the N.W. monsoon lasts, and to the Westward during the S.E. monsoon, from April to November.

Currents of the China Sea.

During the N.E. monsoon the current in the China Sea generally runs S.W. with a velocity depending on the strength of the wind. At the commencement of the monsoon, when it is strong, the S.W. current increases; and when on the contrary the monsoon becomes weaker, there is little or no current.

Western Part of China Sea.—In the Western part of the China Sea, along the Malacca and Cochin-China coasts, a Southerly current generally begins about the middle of October. On the Cochin China coast it is sometimes earlier and continues till the month of April. In March it constantly runs Southward near Pulo-Aor, a season when calms and light East winds often prevail in those latitudes.

On the same coast of Cochin China and near the island of Hainan, the current, varying from South to S.W., commences about the middle of September; near the coast from 15° to 11° N. lat. it becomes much stronger; but loses in strength in proportion as it flows Southward.

During the N.E. monsoon, from the parallel of 14° N. lat. to Cape Padaran, the current near the coast runs South at the rate of forty, fifty, and even sixty miles in twenty-four hours. The rate, however, is variable, and it is only in the zone above mentioned that it is occasionally so strong. It is weaker near Cape Padaran, as well as at the mouth of the Gulf of Siam, and the direction of it is then S.W.

South Coast of China.—Near the South coast of China, at this period, the current generally assumes a W.S.W. direction, and nearly parallel to the coast. It is sometimes very rapid after strong winds or typhoons; but out at sea, at about twenty-five leagues from the land, it is not so strong as it is inshore and between the islands. Sometimes near the land the Westerly current is overcome by the tide.

Formosa Channel.—In the Formosa Channel, between this island and the coast, the current sets Southward during the N.E. monsoon; and when the N.E. winds are strong, it takes a S.W. and Southerly direction in the strait between the South end of Formosa and the North point of Luconia. When, however, the wind is variable, the current often sets Northerly.

West Coast of Luconia.—On the Western coast of Luconia the current is very variable and flows sometimes Southerly and sometimes Northerly.

Coast of Palawan.—The same occurs on the coast of Palawan, where it depends entirely on the wind, and only becomes strong in gales.

In the middle of the China Sea a northerly current is found in the beginning of May, and sometimes in the end of April. When the S.W. monsoon prevails it sets Northerly and N.E. until September. During this monsoon, however, and when the wind is light or moderate, the

current is not so steady, and takes different directions. After the strength of the monsoon is past, a N.E. current is seldom found at sea: but sometimes instead of it one running South.

Gulf of Siam.—Along the coast of Cambodia, from Pulo Oby to Cape Padaran, the current generally runs N.E. parallel with the coast from April to October. At the same time, off the East coast of Malacca, from the Strait of Singapore to the Gulf of Siam, the direction of it is N.W.

Coast of Cochin China.—Off the coast of Cochin China, North of Cape Padaran, the current is not so strong during the S.W. monsoon, and when found between this Cape and the Gulf of Tonquin, it is setting alternately to the Northward and Southward.

When fresh winds from N.W. or West prevail in the Gulf of Tonquin, as well as to seaward, the current near the Paracels and in that part of the sea where these winds extend, generally sets S.W. or South; and its direction in this case being oblique or nearly opposed to that of the wind, it produces a very dangerous sea.

South Coast of China.—On the South coast of China, as in other parts, the wind has great influence on the current. During the strong S.W. winds it sets Eastward parallel to the coast. It is generally strongest near the islands West of Macao, and between these islands there is frequently a Westerly current, produced by the waters of the Canton River. Its rate between Macao and the island of St. John is from one to two miles an hour, and its direction varies between W.S.W. and W.N.W. This current is not experienced during the S.W. monsoon; sometimes it decreases, and then a weak tide is found flowing Eastward.

Coasts of Luconia and Palawan.—On the coasts of Luconia and Palawan, the current sets to the Northward during the whole of the S.W. monsoon; but it is sometimes scarcely felt, and even near the coast is seldom strong.

Bashee Isles.—When strong Westerly winds prevail near the Bashee Isles, an Easterly current is found. Most frequently, however, it runs strong to the Northward, varying at times from N.N.W. to N.E.

Channels.—In the Molucca Channels the current during the N.W. monsoon is much stronger than during the S.E., which accounts for our being able to cross the Strait of Sunda from Europe or the Indian Ocean more easily in May, June, July, and August, than when leaving those channels in January and February. Besides which, in those seas the current depends in a great measure on the winds, notwithstanding their variable character.

Navigation of the Indian Ocean.

The rapid progress of navigation has been no where so remarkable as in the Indian Ocean. In no other sea has it produced results so important. Not only is the seaman now informed whereabouts in this sea he will find, according to the seasons, those periodical winds and

currents that are favourable to his purpose, but he may take his opportunities for profiting by them, and regulating his voyages accordingly; and this knowledge is not only useful to navigation in general, but is especially important to vessels without steam.

In reference to similar wants of the seaman in the Atlantic Ocean, the routes to be taken to the Cape of Good Hope have been shown. We will now consider those to be adopted from thence to ports in the Indian Ocean and China Sea, availing ourselves principally of what M. D'Après de Mannevillette and Horsburgh have said on the subject.

From the Cape of Good Hope the mariner has the choice of several routes to different parts of the Indian Ocean. That which he selects must depend on the season of the year, and therefore will on the monsoon that is then blowing.

To facilitate his choice, against each of the passages are arranged the several periods when they should be adopted, as follows:

Passages.	When to be Adopted.
No. 1.—*The Inner or Mozambique Passage.*	During the S.W. monsoon, when certain of reaching the port of destination before it is over, being those of the Red Sea, the Persian Gulf, and ports of India or the Straits of Malacca.
No. 2.—*Passage outside or East of Madagascar.*	
No. 3.—*Boscawen Passage.*	Adopted when bound to the Western ports of India at an advanced period of the season, when the port might not be gained before the N.E. monsoon commences.
No. 4.—*Middle Passage.*	Is principally taken when the Cape is passed during the month of September by vessels bound to the Western coasts of India.
No. 5.—*First Outer Passage.*	Adopted for the Gulf of Bengal, but with the certainty of arriving before the end of the S.W. monsoon.
No. 6.—*Second Outer Passage.*	Adopted when it is likely the Gulf of Bengal will not be reached before the S.W. monsoon is over, or after the N.E. monsoon has set in.
No. 7.—*Direct Passage for Sunda Strait.*	Adopted during the S.W. monsoon, and when certain of gaining the port of destination before this monsoon is over.
No. 8.—*The Eastern Passages.*	Taken when the meridian of St. Paul and Amsterdam is passed between the middle of September and October, so as to reach the port of destination with the N.E. monsoon. In this route one of the Eastern straits, Bally, Lombock, Allass, Sapy, Ombay, is adopted.

These are the eight principal routes which are generally adopted in crossing the Indian Ocean from the Cape of Good Hope outwards, and are here numbered for easier reference as we proceed.

They will equally serve for homeward voyages the Cape of Good Hope taken in reverse.

In the second division will be found directions for the navigation of the Arabian Gulf or Gulf of Oman.

In the third division will be found those for navigating the Gulf of Bengal, and

Lastly, in the fourth, will be shown the routes to be taken for the China Sea, as well as those for returning, and also the navigation of the inland seas, and the routes from Australia to the Chinese ports, and those of the Indian Ocean.

No. 1.—*The Inner or Mozambique Passage.*

The route by the Mozambique Channel is the most direct to India during the S.W. monsoon, from April to November, for vessels bound to Bombay, Mahé, Ceylon, and the Gulf of Bengal; but it should be adopted only when they are sure of reaching the Indian coast while it lasts.

In making for the Mozambique Channel a vessel should avoid the S.W. and Westerly currents which are found after leaving the Agulhas Bank; and with this view should not make to the Northward too soon, more especially if it be desired to sight the coast of Madagascar Southward of St. Augustine Bay. In such a case it would generally be as well to gain the meridian of 37° E., before crossing the parallel of 34° or 35° South latitude, and then make directly for the channel.

A vessel may then proceed along the coast of Madagascar or take the middle of the channel. By adopting the former she would have to guard against the dangers off the coast; and in the latter, which appears to be mostly preferred, to keep clear of the Bassas de India and the Europa Rocks. In crossing their latitudes at night, a vessel would keep either to the East or West of them, and having passed them should steer for Mohilla and Comoro, and leaving the island of Juan de Nova to the Eastward.

With a fair Southerly or S.W. wind, Horsburgh says, pass to the Westward of the Bassas de India and the Europa Rocks rather than between them and Madagascar, because the African coast is cleaner than the other. But on approaching the coast of Africa, light winds and a Southerly current are found, and the monsoon is usually stronger in the middle of the channel than on either shore. However, in April, and in the beginning of May, the best wind is found West of Comoro, a little to the West of mid-channel.

From Comoro, when bound to India, a vessel should cross the line in 54° East, and when North of it may steer for her port of destination. Thus, if bound for Surate or Bombay, the route from the equator is direct; only keeping more to the West on the parallel of the high land of St. John for the first, and on that of the isle of Kundary for the second port, and then make straight for these ports.

Vessels bound to Goa should make the land at the Burnt Isles; and those for ports Southward of the Western part of India, should pass through the Eight Degrees or Nine Degrees Channel. Nevertheless when the port of destination is Cananore, Tellichery, Mahé, or Calicut, the route may be shortened by passing North of the Laccadives, from whence she may make for Pigeon Island, and then run down the coast to the Southward.

When bound to Cochin, Quilon, or even Anjengas, the Nine Degrees or the Eight Degrees Channel, is generally preferred, the Degree and a Half Channel can also be adopted. This latter channel is preferred by vessels bound for Ceylon and the Coromandel coast. A vessel having passed through it and sure of her position, or if she should have sighted Minisoy, having gained to the Eastward of this island, she may steer direct for Point de Galle. A vessel uncertain of her position should run to the Eastward until she strike soundings on the bank off Cape Comorin, between the parallels of 8° and 9° North latitude; and if the weather is clear, which rarely happens during the S.W. monsoon, land will be seen at the distance of twenty-seven or twenty-eight miles. As soon as soundings are obtained, a course to the Southward should be adopted, in order to reach the latitude of Point de Galle, for with the S.W. winds the current sets toward the Gulf of Manar, and off Point de Galle the wind frequently becomes S.S.W., delaying vessels considerably if they cannot weather it.

By the first route Krusenstern sailed from the Cape on the 27th of June, 1797, crossed the line in 44° 30′ E. long., and reached Ceylon on the 2nd of August, and Madras on the 4th, after a voyage of forty days.

No. 2.—*Passage to the East of Madagascar.*

The Passage to the East of Madagascar is often preferred, because perhaps it is less dangerous than the former, and is certainly less liable to variable winds; hence it might occur, that two ships separating to the Eastward of the Cape of Good Hope, one of them to take the Mozambique route, and the other that East of Madagascar, that the latter vessel might be the first to reach her port of destination. This last is often adopted in the months of August and September, the time when variable winds are found in the Mozambique Channel.

The route East of Madagascar is adopted from February to October. Nevertheless it is necessary then to have doubled the Cape at a time so as to be sure of reaching the port of destination in India with the S.W. monsoon.

When taking this route, a vessel, after having doubled the Cape of Good Hope, should steer Eastward, and take care not to get so far to the Northward as to cross the Southern limit of the trade winds before she has reached the meridian of 50° East. By meeting the trade wind too soon, much difficulty will be experienced in making Easting, particularly on the parallel of the S.E. part of Madagascar, where winds, known by the name of Fort Dauphin breezes, generally blow violently from E.N.E., producing a strong current, (sometimes from

forty to fifty miles,) setting to the Southward near the shore. These winds are found several degrees East of Madagascar.

In crossing the trade, a vessel should keep between the meridians of 51° and 52°, until she reaches the parallel of 15° S.; she would then sight the Eastern cape of Madagascar, or the land Northward of it, or perhaps Cape Amber, thence taking a fresh departure. In leaving Cape Amber the best route to take is North or N.b.E., until the islands situated to the N.E. and N.W. of this cape are passed. Then with the S.W. monsoon she would easily reach any port on the coast of India.

Horsburgh left the English Channel on the 30th of April, 1802, and anchored in the Bombay Roads on the 30th of June following, having made the voyage out from England in three months.

A vessel leaving the Cape for the Red Sea or Persian Gulf from September to March, will find it most advantageous to adopt this second route East of Madagascar.

From March to September she should take the Mozambique Channel. Nevertheless this second route might still be adopted, although the first is shorter; but having passed the Seychelles, the Red Sea or Persian Gulf should be steered for direct.

No. 3.—*Boscawen Passage.*

The Boscawen route is called after the Admiral whose name it bears; who, commanding a fleet composed of twenty-six sailing vessels, adopted it on his way to India, and made a very short passage.

In this route the Admiral passed to the South of Madagascar, keeping betwen the parallels of 37° and 38° South, and in the counter current of the Indian Ocean, until he had arrived in 54° or 55° East. He then steered Northwards and passed between the islands of Reunion and Mauritius. Leaving these islands he steered directly North, with the islands of Cargados Garajos, and the Sayha de Malha Shoals to the Eastward, and Galega and the Seychelles to the West, crossing the line on the meridian of 62° East.

The Boscawen route is generally taken by vessels bound to Bombay or the Malabar coast at such an advanced period as to render their reaching it before the commencement of the N.E. monsoon uncertain. For vessels which have not doubled the Cape before the 1st of September, this passage and the middle one, alluded to presently, are more advantageous than the two preceding them. Indeed, these two routes lying further Eastward, a vessel would be in a better position to reach her port should she meet with the N.E. monsoon.

No. 4.—*Middle Passage.*

The Middle Passage, which is still more Easterly than the Boscawen, leads outside and to the East of Madagascar, and then West of the Chagos Archipelago. A vessel taking this route from the Cape, should pass East of the Meridian of 67½° or 68° East, so as not to find the trade wind in the case of their hauling more Easterly, which ordinarily happens in March or April. Thence making less Northing

she would cross the parallels of 27° or 26° South latitude. On reaching the trade she would cross it steering North, and keeping on the meridian of 67½° or 68½° as long as the wind will permit.

In the vicinity of the equator Westerly and N.W. winds are frequently met, and she would profit by them as much as possible in making Northing. Beyond the equator the N.E. monsoon might not be a foul wind, because at this period it is oftener N.W. than N.E. If not too strong it is favourable to vessels bound to the Malabar coast.

When the trade is crossed by a vessel going Northward, she should keep between the meridians of 65° and 68°, in order not to be set down to the Maldives by the Easterly current and the light winds met with near the line. In October and November, when in 3° or 4° N. latitude, a vessel is very likely to meet with Northerly winds, inclining more Westerly than Easterly, as before observed. She would profit by these variations of the wind, taking the most advantageous tack; as the sea is generally smooth, in making these tacks well she would easily pass to the North of the Maldives, in which case she would run to the N.E. for the land. If instead of being bound to a Northern part of the West coast of India, she were going to a Southern port of that coast, she would take the Nine Degree Channel or the Eight Degree Channel between the Maldives and the Laccadives, or the Degree and a Half Channel if she be bound to Ceylon.

The Middle Passage just mentioned is taken mostly by vessels which double the Cape of Good Hope in the month of September, when bound for the Western coast of India.

A vessel going from the Cape to the Mauritius, should make her Easting in a high latitude, according to the foregoing instructions for the Middle and Boscawen routes, continuing more or less to the Eastward according to the season. When she meets the Trade she should be on the meridian of the island to which she is bound, or to the Eastward of it, in order that she may not be obliged by the wind being at East to keep too close a luff in order to lay up for the island.

But when the sun has high North declination, it is not necessary for a good sailing ship to stand so far East as above said, for then the Trade is between E.S.E. and S.E., the time when it has least Easting. In March and April, on the contrary, it is frequently due East; and from November to March it is oftener to the Northward of East than due East, varying indeed from N.E. to N.W.

From March to September vessels leaving Reunion or Mauritius for India, should proceed Northward passing East or West of the Cargados Garajos, and East of the Seychelles. Then if bound for the West coast of India, after they have crossed the line they should adopt one of the routes mentioned at page 345, according to their port of destination.

If bound to the Gulf of Bengal, after having passed the Seychelles they should take the Equatorial Channel or the Degree and a Half Channel, and make for Ceylon. On leaving the Mauritius or Reunion for India or the Gulf of Bengal, it will be more advantageous, if the

wind permits, to pass East of the Cargados Garajos as well as the Chagos.

During the N.E. monsoon, in leaving the above islands, Horsburgh recommends a vessel going to the Gulf of Bengal to adopt the same route as in the S.W. monsoon; and he considers that a vessel should stand far enough to the Eastward to take the Equatorial Channel or that of the Degree and a Half, this route being more direct than the other.

D'Après de Mannevillette, on the contrary, says the route to be preferred is that taken by him, and which he calls the equatorial route. He shows that several vessels by following this route have reached Pondicherry from Mauritius in twenty-six or thirty days.

A vessel leaving Reunion or Mauritius in either of the months of November, December, January, February, and the beginning of March, should stand to the Northward or take the Boscawen Passage until she has reached the parallel of 5° S., when she should make to the Eastward; and, according to D'Après, keep between the parallels of 4° 40′ and 3° South latitude. Horsburgh says, she may even keep between 3° and 1° S.; but as the former says to the Northward of the parallel of 2° S. is a district of calms and squalls, while between 3° S. and 4° S. there are often light Westerly winds. If she is bound to the Gulf of Bengal, in standing to the Eastward when she has reached the meridian of 90° or 92° East longitude, she should make to the Northward to cross the line, and she may then steer for her port of destination. She would have to make less Easting if bound to a port on the West coast of India, and in which case reaching the meridian of 81° or 82° East would be sufficient.

The four routes abovementioned may be taken not only by vessels bound to the Western coasts of India, but also by those going to the Gulf of Bengal, provided that the Cape is left in sufficient time for them to reach their ports of destination before the end of the S.W. monsoon.

(To be continued.)

Decret Disciplinaire et Penal pour la Marine Marchande.—*Report to the Prince President.*

Paris, March 24th 1852.

Monseigneur.—Among the causes which retard the development of our Merchant Marine, the essential basis of the naval power of the country, the want of discipline of the ships' companies is perhaps the most important.

The daily reports of the captains state their inability to repress the excesses of the seamen placed under their orders. The complaints of

owners against a spirit of revolt so prejudicial to the success of their undertakings, go on increasing. In fact, the unanimous representations of the Chambers of Commerce of our ports, prove how absolutely necessary it is that this evil of long standing should be remedied, one which by the injury that it inflicts on commercial enterprise injures the public good, and threatens in its vital principle the maritime power of the State.

The law is the foundation of all the authority vested in the chief and demands the obedience of the subordinate. It is the natural source of order throughout society, combining the principles founded on acknowledged truth, and applies in a special manner to that numerous class of society—seamen.

The life of a seafaring man is peculiar to the class. Shut up within the narrow limits of the ship which transports him from one part of the globe to another, across the solitudes of the ocean, amidst dangers of all kinds, he cannot expect to escape from the incessant difficulties of his position, unless he implicitly obeys the orders of his captain. A mere moral superiority is not always sufficient to obtain this essential condition, and it is absolutely necessary that the law should secure to the captain the means of enforcing his command in proportion to the imperative exigencies of his arduous station.

It is not for a maritime nation, which has acknowledged this necessity, to disavow it at any time, and with all seafaring men, maritime laws have had for their common basis special jurisdictions and particular penalties.

As long as France took this view of the subject discipline strictly maintained among the crews of her merchant ships prevented those deplorable excesses which they so frequently present in our time.

The Marine Ordinance of the month of August, 1681, had guided the decisions of the judges of the Admiralty, whose power reached all offences committed either at sea, in the ports and harbours, or on the coasts. This special jurisdiction was immediately available, and consequently worked with efficiency on those who were employed in the merchant service. The same ordinance also invested the captains of vessels with the power of enforcing discipline among their crews, and authorized them to restrain their people by confinement in the hold, and in irons, and to punish with similar treatment, during the voyage, mutinous, drunken, and disobedient seamen, and those who ill used their shipmates.

On the 7th of September, 1790, the Constituent Assembly kept the Judges of the Admiralty from the cognizance of these laws; and on the 13th of August, 1791, suppressing the office of these special judges, divided their several powers between the Tribunals of Commerce, the Judges of the Peace, and the ordinary tribunals. The law of the 22nd of August, 1790, concerning the Fleet, regulated the discipline and the particular punishments in ships of war; but it did not include the crews of merchant ships.

Moreover, as the Article 61 of this law, applied only to the military marine, and did not extend to other maritime laws; the Courts of the

Republic, as far as concerns seamen, have exercised the right of correction as to discipline as authorized by Art. 22 of the ordinance of 1681.

An imperial decree of July 22nd, 1806, abrogating the original law of August, 1790, created Councils of Justice and Councils of War for the Fleet, and another decree of the 12th of November, 1806, did for the Dockyards what that of the 22nd of July of the same year had done for the Fleet; but both of these abjured all interference relative to the merchant marine.

The decree of August 15th, 1851, which has repealed the ordinance of October 31st, 1827, as to service on board the vessels of the State, enjoins, it is true, commanders of those ships to look to the maintenance of order and discipline on board trading vessels; but it is a simple right of surveillance, and not one of jurisdiction.

Previous to the year 1790, the legislation of France, in reference to the merchant marine, was complete and efficacious. It secured for a class devoted to a special mode of life, with habits and manners peculiarly their own, judges competent to appreciate their acts, with the full knowledge of their value. The Constituent Assembly of the 13th of August, 1791, by suppressing that valuable jurisdiction, and placing seamen under the common law, dealt a fatal blow to that discipline without which no maritime service can exist.

The captains of merchant ships have no longer any power over their ships' companies; they cannot use the right of punishment which the ordinance of 1681 gave them, because the penalties which it sanctions are either too severe for the present time, or impracticable on board vessels with a small number of men, and besides the power which it gave them is limited to offences committed during the course of the voyage, or in the ports of France as well as in foreign ports. Thus there is the power of the captain annulled entirely, for since the repeal of the 13th of December 1829, the Commissaries of Maritime Inscription can only deal in the punishment of offences relative to the service of the State and to general police, without in any way meeting the requirements of the merchant marine. And yet, on board of a merchant ship equally as on board a ship of the State, the lives of crew and passengers depend on the prompt performance of certain manœuvres, on the ready obedience to orders, and on the absolute submission to him who commands. Public law therefore must not leave unpunished offences by which are compromised the fortunes and the lives of citizens.

At sea the slightest fault is important, on account of the fatal consequences which may arise from it. If it be not corrected at once, the punishment is delusive, in fact worse, for insubordination is thereby encouraged, and hence the inefficiency of tardy judicial proceedings before the ordinary tribunals for acts which have most frequently occurred at remote distances, perhaps in foreign roadsteads, and nearly always without the power of producing witnesses. Besides this, the offence may be one of those not provided against by the ordinary penal code, and the captain may prefer to leave the offender unpun-

ished rather than be involved in an affair the delays of which are incompatible with his commercial employment.

In the midst of this disastrous state of things, your Government, Monseigneur, cannot remain indifferent to it with the power of renovating an unsound legislation, and of grappling with the numerous deformities which it presents. Maritime commerce, which has already waited long, and which relies principally on your high spirit of justice, looks to your government for the removal of those evils by which it is afflicted.

One of my predecessors, Admiral Duperré, convinced, as I am myself, of the urgent necessity for a reform in the laws relating to merchant shipping, drew up two plans, one in 1834 and the other in 1836, of a code for their management that unfortunately did not obtain the sanction of the Council of State. In 1850 the Minister of Marine confided the same task to a commission, whose report, after having been communicated to the Chambers of Commerce of our principal ports, has served as the basis of that which I have the honour to submit to your sanction, and which combines the results of twenty years' deep attention.

To conciliate as much as possible the respect of the person with the necessities for which it was requisite to provide, this proposed decree leaves a great number of cases to the course of common justice, and principally those which are of a nature to entail the application of severe or capital punishment, and it has only deviated from that general rule by providing for those cases which are purely maritime, and falling within the category of offences against discipline.

The greater part of these are indeed neither infractions of the law nor ordinary offences. To define them it is necessary to have recourse to a language foreign to common law, which has not provided against them, and which could not anticipate them, because they are in reality maritime offences. They are naturally beyond the cognizance of correctional tribunals, but fall within the province of a controlling power to be exercised by men perfectly competent to appreciate their nature and importance. The maritime commercial tribunals herein proposed, will present by this report every desirable guarantee. And in respect of the penal exactions which this report recommends, they are supplied by the same provisions of our maritime laws, in fact, remaining in harmony with the custom of the day, and conformable with the just demands of society.

The power of suppression extends to breaches of discipline, maritime offences, or crimes: everything which compromises the order of the service and the safety of the vessel, does not fall, we repeat, within the domain of justice; every common offence, not provided against by this report, belongs to the ordinary tribunals, and the cognizance of *crimes* is, without exception, left to a jury.

Thus the report only submits to a special jurisdiction such offences as are purely maritime, against which the ordinary tribunals are powerless.

The preliminary considerations embrace some general rules relative

to the classification of offences provided for, and to different classes of persons subject to the laws of the ship.

The offences are classed according to the punishments which they incur, according to the system adopted in the penal code of 1810.

Persons whose names are on the list of the ship's company, and employed on board under any title whatsoever, shipwrecked mariners, deserters or offenders returning to their country, or passengers, are subject to the rules of order and discipline on board.

These conditions are justified only thus:—So long as the voyage lasts the power of the captain must be scrupulously respected. The passengers cannot be exempted from this essential obligation; but equitable mitigations have been observed both in the nature and mode of applying the penalties.

In respect of some matters left to the ordinary tribunals, it has appeared expedient either to institute a penalty sanctioning certain cases anticipated by the commercial code, and which to the present time have escaped justice; or to mitigate penalties already existing against several offences of barratry by the law of April 10th, 1815, the severity of which has too often caused acquittals much to be regretted.

After this rapid view of the general subjects intended to be dealt with by the proposed decree, it remains to me, Monseigneur, to invite your attention to the most important of the details which it includes.

Besides the preliminary considerations, it is classed under four heads, that is to say:—

1st.—Of the Jurisdiction.

2nd.—Of the Form of Proceeding.

3rd.—Of the Punishment.

4th.—Divers Enactments.

The first head is redivided into four chapters:—

Chapter the first regulates the order of jurisdiction for the exercise of the controlling power.

In the ports and roadsteads of France, and in the ports of the French colonies, this power belongs to the Commissary of the Maritime Inscription.

In the roadsteads of the French colonies, also in the ports and roadsteads of foreign countries, this power is vested in the commanding officer of the ship of war present at those places, or, in his absence, either to the Commissary of the Maritime Inscription or the Consul of France.

At sea, or in ports where neither of these authorities are to be found, the same power falls naturally to the captain of the vessel, who is held responsible to give account, on the first opportunity, of the punishments which he has awarded on the score of discipline. He is absolved however from this obligation so far as concerns the three light penalties provided for by the Article 53, which he has the power of applying wherever he may be.

This reconstruction of the controlling power is one of the most useful measures of the proposd decree, and will be followed by the best results.

Chapter the second institutes the Maritime Commercial Tribunal, and transfers to its jurisdiction every person accused of a maritime offence.

The necessity of this arrangement is sufficiently proved by the foregoing statement, and I believe it superfluous to urge it further.

Chapter the third determines the organization of the Maritime Commercial Tribunal, which is always to be composed of five members. It is presided over according to the place where it is held by a Commissary of Maritime Inscription, the Commander of a ship of war, or a Consul of France. In any case the office of President cannot be confided to a vice-consul or consular agent.

The Tribunal includes always a boatswain among its members, but not of any other merchant ship excepting that to which the accused belongs.

As the Tribunal cannot be permanent, the composition of it cannot be left to arbitration: rank, long service, or age, will rule in fact the choice of persons called to take part in it.

Measures protective of the interest of the accused, are not confined solely to the above.

The captain who makes the complaint and the person offended against, cannot sit in the Tribunal.

As to the other causes of incompatibility and recusation set forth in Articles 20 and 21, they are borrowed from the code of civil process.

Chapter the fourth explains, that crimes provided against or not by the decree, remain within the reach of the ordinary tribunals.

The second head is divided into three chapters, which determine the precautionary measures necessary to insure the statement of facts and the progress of different jurisdictions.

If it treats of an act of discipline, the captain states it, as also the decision which he has given.

If it relates to the competence of the Maritime Commercial Tribunal, he also states it, prepares the *procés-verbal*, hears the witnesses, and makes his complaint to the authority called upon to preside over this Tribunal.

The decisions given in cases of offences against discipline, are without appeal, and the judgments of Maritime Commercial Tribunals in cases of offences, are equally without appeal, and cannot be overruled by the Court of Cassation.

In the first case, it admits of a light punishment, which is applied instantaneously to the culprit.

In the second case, the elements necessary to form a Tribunal of Revision, would be nearly always wanting. We cannot, on the other hand, grant that kind of right which entails the suspension of execution without losing the salutary example of immediate punishment: this essential disposition for the maintenance of discipline is one of the necessities which govern maritime legislation.

Moreover, the Minister of Marine will be able in cases anticipated by Article 441 of the code of criminal instruction, to transmit to the Minister of Justice, to be referred to the Court of Cassation in the

interest of the law, the judgments which would violate the dispositions of the decree relative to the composition of the Tribunal, the publicity of the sittings, the administrations of oaths, and the preparation of the *procés-verbal.* Maritime tribunals will thus have a regulator, and their acts will not altogether escape control.

Punishments awarded against captains in the course of the voyage, cannot be undergone by them until their return to France.

This exception is indispensable for the safety of considerable interests confided to navigators who command merchant ships.

The third head, treating of punishment, is subdivided into two chapters. Chapter the first determines the punishments applicable to breaches of discipline, to maritime offences, and to crimes.

The punishments for breaches of discipline vary according as to whether they affect the officers, seamen, or passengers. The different positions of these three classes of persons do not admit the same punishments to be common to all. Certain punishments, which would suit very well for seamen, would have a bad effect in compromising the dignity of an officer, and would be too severe for passengers; other chastisements, efficacious toward passengers and officers, are inapplicable to seamen. Hence arise distinctions in punishments, which are necessary in the nature of things.

It is not without regret that we have been obliged to recognize the number of punishments inflicted in a ship of war during a voyage; but experience proves that the service of the Fleet, which ought to be for sailors an object of ambition, is, in most instances, still viewed with serious aversion.

The interdiction or suspension of the power of command, is one of the most efficacious punishments which can affect the commanders of merchant ships. Under this head it should appear in the report, which if it protects captains against the spirit of insubordination of their crews, has not allowed their offences to go unpunished.

Chapter the second treats of offences. The first section of this enumerates the offences against discipline, and comprises those infractions to which seamen are most inclined.

The foregoing attaches to these offences a character sufficiently serious to class them among those set forth in the second section of the same chapter. The acknowledged necessity of preserving discipline and obedience among the crews of merchant ships, has defined the offences punishable by correctional penalties; it would be too long here to repeat their designation, and I shall confine myself to mentioning those which deserve particular attention.

The penal code (Art. 376 and 444) punishes a simple insult with a fine of one to five francs. In general on shore this punishment might suffice; but it is not the same on board of a ship, where an insult offered by a sailor to his captain or officer becomes, from its very locality, an offence of considerable gravity. This offence, very frequent in the present day, demands immediate and energetic suppression.

It is the same as to a verbal threat, against which the common law

prescribes no punishment; seamen take advantage of this lenity to defy their captains. Article 61 of this proposed decree provides a remedy for these abuses.

Desertion injures at once public order and the interests of commerce. Public order, because the deserter withdraws himself, during the whole term of his illegal absence, from obligations which his engagement imposes on him; the interests of commerce, by the irregularity it causes among the crew, which it is often very difficult and expensive to complete, particularly when the vessel is in the colonies or in a foreign port.

With respect to the punishment of imprisonment for desertion, which was ordained by the ordinance of 1784, the application for it was to be made to the ordinary tribunals, which the law of August 13th, 1791, has invested with this power, formerly devolving on the Admiralty; but the Minister of Justice has refused to acknowledge this right of the tribunals in the first instance; whence it results that seamen of merchant ships, having only to fear a slight punishment, make a practice of breaking their engagements: and this abuse is one of those of which owners most strongly demand the suppression. The penalties provided by this decree are graduated according to the importance of every act of desertion.

Rebellion is provided against by the penal code; but only applying to individuals of the public service, it is without doubt only reasonable to include with these the captain of a ship; but as in penal matters everything rests on a narrow basis, it is necessary to define the conditions of its application.

In like manner as in the penal code, the proposed decree distinguishes an armed mutiny from that which is not so, and punishes the one more severely than the other. An armed mutiny of more than one third of the ship's company, constitutes a *crime* which is within the cognizance of the ordinary tribunals.

Offences committed by captains and officers ought not, I repeat, to escape punishment more than others. Articles 74 to 87 of the report refer specially to arrangements adapted to keep those in the line of duty whose example naturally exercises great influence over the men under their command. The abuse of authority is destructive of order and discipline: the proposed decree provides that it shall not go unpunished.

Drunkenness is a vice unfortunately too common in the merchant marine, and particularly among ships' companies which frequent cold climates. This vice assumes a most dangerous form when it manifests itself in persons intrusted with the charge of a ship. Severe penalties will contribute to keep them from it.

Offences against which the proposed decree does not specify a decided punishment, may be treated as the judge directs by Art. 55.

Section the third provides against maritime crimes which either captains, officers, or seamen, may be guilty of, and which the ordinary tribunals are called upon to judge by continuation.

The provisions of the law of April 10th, 1852, in cases of barratry,

stood in need of being completed. The penalties inflicted by this law required to be relaxed. The proposed decree has so provided accordingly.

The fourth head contains several arrangements which define the authority of the captain over the ship's company and passengers; permit him to employ force to secure the author of a crime from the power of doing further mischief; explains that in case of mutiny the resistance of the captain shall be considered as an act of legitimate defence, and fixes to five years the delays of public action for offences provided against in the proposed decree.

Such, Monseigneur, is the analysis of a code of laws which I venture to hope will restrain seamen without subjecting them to unjust severity; will keep them within the bounds of proper subordination; and while protecting them against the abuse of arbitrary power, will restore security to the merchant marine, and render an immense service to the country.

I am, &c.,

The Minister Secretary of State for the Marine and Colonies,

THEODORE DUCOS.

A VOYAGE TO THE WEST INDIES, *with Notes on St. Lucia.—By C. R. Maclean.*

The voyage to St. Lucia was scarcely resolved on when a multitude of recollections rushed into my mind, fresh from memory's store-room, of what I had seen there in days long gone by. Sometimes it is pleasing to recall those moments that have hurried away,—to take a retrospective view of events which we cannot recall when they bring associations of scenes in which we took delight. But there are others too from which we would not remove that veil of oblivion which time so happily throws over them!

It is now nearly thirty years since I made my first voyage to the West Indies, to which I am about to return with the impression of scenes which seem as a dream, now to be compared with reality. But where do we not find change look where we will. Time rolls on. Nature herself is perpetually working change, and man only follows the example of her caprice when he changes too. Even in the common affairs of ships, what changes have not been effected in this short period. Science, backed by economy, has been busy; and the result is improvement everywhere. Chains have superseded the stubborn and cumbersome hempen cables. Additional mechanical power has been applied to the windlass. Yards have been secured to the masts by patent trusses. Even self-reefing topsails are now coming into general use. So that the labour and even the requirements of the

sailor have been considerably abridged. And well it is so. Science has improved on all and everything appertaining to a ship, from hull to rigging everything has been improved. But one material has not, and this I lament to say has fearfully retrograded. Where are our sailors? The best of them, as far as my experience tells me, now find more profitable and certainly more comfortable employment on shore in fitting out ships instead of going to sea; and who are these that supply their place? from whence do they come? Many of my old shipmates, and other seamen of my day, are thus employed: and a ship when fitted out by them is launched to sea with such a crew that, make the best selection from among them that can be, lucky is he who finds two or three good helmsmen in ten. This he may do, but he will not find even one in ten who can heave the lead. This is no exaggerated statement, but one that would be borne out by an appeal to any number of pilots of the port of London.

When I made my first trip to the West Indies it was in a two voyage ship, and in running down the Trades we did what was commonly done on the outward voyages of those days: we used to strip one mast at a time, while all sail was crowded on the others, and thus refit the rigging;—a system of great advantage to the training of apprentices.

Among the many causes assigned for shipwreck by the Committee of the House of Commons, if I recollect right, one was, the want of a devil among the crew. Was a *sea devil* meant? Perhaps so, and rightly enough too, for unfortunately we have nothing now a days but *land devils*, a class of men who, when at sea, are generally as tame as they are useless; but no sooner do they smell their own proper element (land) than they show the cloven foot. These men, when at sea in mid ocean, have the instinct of self-preservation sufficiently strong. It impels them to some degree of obedience, and to perform in their way that duty of which most of them are entirely ignorant. But as soon as land is near, obedience to orders is shaken off, and with that ingratitude characteristic of the thorough shore-going scamp, the anxiety and trouble you have had in conducting your ship across the ocean with such a band, is now rewarded by insubordination and misconduct of the worst description. It may be said regret is useless, the old school is being superseded by a *better (?)*, and having come in at the hawse hole it is not for me to abuse a class of men from whom it has been my good fortune to rise; but such is my experience.

With such a crew I sailed from Woolwich in the *Gilbert Munro* for St. Lucia on the 24th of December, 1856, taking principally commissariat and ordnance stores, with a few plantation stores for the use of the different estates from which we were to receive our return cargo of sugar.

On Christmas Day, after disposing of our plum-pudding, a favourable breeze having sprung up, we loosed from the Downs, and made all sail with a large fleet in company. After clearing the English Channel with a favourable breeze, I shaped the usual course for the Southward that cut short the winter with us, and on the 12th of January made

the island of Madeira. Here we found fine summer weather: from hence we soon reached the Trades.

The old Salts say the trade winds, like sailors, are degenerating, and are not so constant now as in days of yore. However, I found them much the same as in my former experience at this season of the year, varying from E.N.E. to East, while in the months of August, September, and October, they become more Southerly, changing to E.S.E. from East, and sometimes in these latter months blowing steady for several days at S.E.; at least such is their general character.

Leaving the general dry details of running before the wind for three weeks, varying in strength, and without the good old-fashioned amusement of stripping the masts, for the benefit and edification of the rising generation of tars; all this operation having been performed in dock before sailing;—on the 27th of January, at 4h. p.m., we saw Barbados in the S.E. quarter; and at daylight the following morning St. Lucia appeared before us in all its lofty ruggedness, The cloud capped top of the Pittons of Cannarie, the highest land in the island, towering far above the more humble elevations. No vestige of cultivation appears on the windward side of this island; nothing but a dense mass of forest from the base to the summits of the mountains meets the eye; and no attempts have been made nor perhaps ever will be to disturb the repose of this primeval forest.

As the grey light of morning gave place to the long line of mellow gold that now tinged the eastern horizon, and the sun rose like a globe of fire from the depths of the ocean, the distant island of Martinique became clearly visible, with its Diamond Rock, famed in the annals of war.

On hauling round the North cape of St. Lucia and holding our course before a steady breeze, Pigeon Island, with its fort and flagstaff, appears. This little island is about the fourth part of a mile from the northern end of St. Lucia, and about two hundred yards from its main land, and forms the N.E. boundary of the fine bay of Gros Islet. On the highest summit of Pigeon Island stands fort Rodney, by whom I believe it is said to have been constructed, which commands a complete view of the channel between St. Lucia and Martinique, and even of Fort Royal Bay. Some substantial barracks appear on the low eastern end of this little island, which being considered a healthy spot, is appropriated as a convalescent station for the troops stationed at Morne Fortuné. Passing Pigeon Island at a cable's length from its bold shore, all dangers being visible, the fine capacious bay of Gros Islet and the village of that name opens out, celebrated in naval history for having been the rendezvous of Admiral Sir George Rodney's fleet in 1782.

Steering S.S.W., along the North side, for Castries, after passing Gros Islet Bay a little round islet called the Barrel of Beef, is seen. This is bold to within half a cable's length. From thence to Choe Bay, a patch of shoal water extending fully a mile from the shore, must be avoided. It forms the North-Eastern boundary of this bay. Be-

tween this and Rat Island on the S.W. side, a vessel entering the bay must work to gain an in shore berth. Should a vessel be required to anchor when abreast of Rat Island, with the bearing S.W., she will have 4½ fathoms, with a sandy bottom a short half mile from shore.

Choe Bay, is also distinguished in the annals of Great Britain. It was here that in April, 1796, General Sir Ralph Abercrombie landed with a force, supported by a squadron under Rear-Admiral Sir Hugh Christian, for the reduction of the island; and on the 27th of April, 1796, the brave generals Sir Ralph Abercrombie and Sir John Moore were received by the Choe beach, and St. Lucia, after a severe struggle, was subdued. Taking a retrospective view all around, St. Lucia has an interest of which the absorbing pursuits of time can never divest it; who can forget those days and the heroes that upheld the honour of our flag, when the world was arrayed against us? Every inch of ground they trod is sacred to their memory! and here, when the hills of St. Lucia, that now appear so enticing and placid, were sending forth a deadly fire, shall we not remember the men, who, with undaunted courage, marched to their summit and made the mours? To an Englishman every guava bush and soursop tree has an interest viewed as an evergreen monument planted by nature to mark the grave of many a brave but nameless hero, who fell in the cause of liberty and his country!

I regret to observe that our charts* of the coast of St. Lucia are very imperfect, and some of the directions lead a stranger to suppose that the little village of Gros Islet is the capital of the island, instead of Castries, which is five miles further to the South-West. The carenage or harbour of Castries, it is to be observed, is a blind one, and particularly so to a stranger, for nothing can be seen of it in coming from the windward or leeward sides until quite abreast of its narrow entrance. The Vigia, a bluff point, on which there is a signal-post, is its northern boundary. In running down along shore from Pigeon Island, and half a mile from shore, the flag-staff and look out house, on the summit of the Vigia, are conspicuous objects. Further to the Southward and beyond the Vigia, the garrison buildings on Morne Fortune will be seen, and are useful in helping a stranger to discover the harbour.

(To be continued.)

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria.*

(Continued from page 320.)

In our rambles on the West side of the island we discovered the remains of a Malay proa, at high water mark, the beams of which

* A defect not likely to be remedied at present, as we have no surveyors in the West Indies, and we look in vain for even the coast-line of the island.—ED.

were teak. We concluded she had been cast away during the N.W. monsoon; her beam was 17 feet; length could not be ascertained. By the afternoon we had completed water (although somewhat brackish) to about five tons; and in return deposited pumpkin seeds and Indian corn round the well, where the soil was rich; cut our vessel's name on a log of wood across the well, and bade it adieu, after leaving a full account of our visit, the object we had in view, and our intended movements.

With the intention of examining Albert River for the object of our visit, at 2h. p.m. we made sail for the mouth, watched by the natives who were on Bentinck Island, gazing at us with astonishment to see a vessel move through the water by "smoke." To this we attributed their shyness.

Although at daylight the next morning (2nd of August) we shifted position nearer to the mouth of the river, in 2 fathoms, we were still six or seven miles distant, when suddenly a North wind with a dense fog threw a veil over our prospects, leaving us time to prepare the boats. Soon, however, it cleared away, and left us to carry forward out plans.

At first I had intended to send the two mates on this service; but on second thoughts I could not resist taking the galley with five men, a motley crew, which for their own sakes ought to be duly recorded here.

Charles Petersen, a Swede, originally "fancy man" in a toy-shop.
David Kerry, a sailor and Scotchman, tenant of the Duke of Argyle.
George Barton, a hairdresser and unfortunate gold-digger.
James Lussoni, an Italian, descendant of the old Genoese merchants.
James Anderson, "runaway man of war" and worn out.

Mr. Marshall Williams, the Second Officer, in the whale-boat had also five men.

William Hursey, an exile of New Zealand.
Lewis Johnson, American, long time in the possession of the natives of King George Sound.
Thomas Glover, a specimen of a discontented growler.
Charles M'Casky, a cockney, an unsuccessful digger, sings a song.
John Jones, was at the Diggings, subject to apoplexy.

But most of these are what a man-of-war's man would term *purser's names;* that is, borrowed until worn out and no longer serviceable, as articles of clothing are taken up from the purser. Falstaff himself might have mustered a more ragged crew, but not a more motley one of race and origin, to say nothing of qualifications.

The boats were victualled for six days; armed with a brass one-pounder swivel in the bows, each man with a musket and pistol, and forty rounds of ammunition, rockets, blue lights, and portfires in proportion. Thus provided and ready to meet a host of hostile natives, at ten we made sail to a light North wind on our interesting cruize for the river.

I had nearly forgotten the colours we were to sail under; but happily in my boat was a new "blue silk ensign," which very soon gracefully floated over our little party. It was a beautiful piece of

work, and had come from the hands of three of "Ireland's fairest daughters," on my appointment to the *Torch* in 1852, with a promise that it should only be displayed on "special occasions." Was not this one of them!

After leaving the ship we steered W.S.W. for the entrance of the river (or rather for the high trees on the Island to the West of the entrance.) These were supposed to be Flinders' trees whether they are so or not, being the conspicuous objects (as Capt. Stokes also observes) about here, and if they are Flinders' they are not in their proper places. When the river opened South of us, we made *all* sail, spreading the awnings for studding sails, and the spare hammocks for topsails, with a light North wind, the tide running against us two knots per hour. At one p.m. we entered the river, and pursued our course up the stream. When about six miles from its mouth the evening set in; the sunset was grand and imposing, but too much so to last, for the time was an instant; no twilight! and all was darkness, leaving us only a few minutes to look for a place to bivouac. This was no easy task, for the whole shores were lined with mangroves, behind a beach of soft mud. One place, however, a little clearer than the rest, offered us a retreat. The boats were secured to the mangrove trees, and in about five minutes a blazing fire announced that we had encamped on this spot. Here, before retiring for the night, a rocket was fired and answered by the ship,—a preconcerted signal,—telling all was well. The men slept on shore on a tarpaulin, with the sails for awnings. The officers in the boats, with the awnings spread; the watch looking out. But, alas!

> "As sparks fly upward to the sky,
> So man is born to misery."

All had yet gone smoothly, but unhappily about midnight the whale-boat filled up to her thwarts, by which a bag of bread, all her fresh provisions, sugar, &c., were spoiled; and Mr. Williams was awakened from his dreams by finding his boots full of water. If all the capes, inlets, and creeks, were not already called Disaster, Accident, &c., this mud bank would have been well named so.

Before daylight we were moving, the flood tide having commenced, and fortunately when it turned left us the legacy of a gentle N.E. wind.

The thermometer in the sun to day was 122°.

The salt water arm of the river was passed without seeing one native. During the dinner hour the whale-boat, which had proved leaky, was hauled on the bank, turned up, and when quite dry her seams (which were much open) stuffed up with soap and the inside part of piecrust, which answered well, and prevented her playing us a similar trick. As the evening closed in the boats were hauled on the sandy spit of Island Reach, the first spot since entering the river where one could land without sinking to the knees in mud, although we were now twenty miles from the entrance.

The fire was soon blazing on the spot where not many minutes before natives had encamped, and we found a store of wood all ready

for us. In hopes of meeting with natives I wandered away a short distance, but they had all fled, and a small kangaroo was the only stranger seen.

About eight in the evening, when dark, a rocket was fired, to announce to any of the North Australian Expedition that a party was at hand in search of them. In fact this, which was the chief object of our expedition, was also the theme of general conversation. The boats' crews concluded without a question that Mr. Gregory must be found at the head of the river; one would give him this, another that, others would go without grog and tea, so that they might have plenty. Every tree, creek, shrub, island, and beach, were well scrutinized, in the hope of discovering some signal that would lead us to the persons of whom we were in search; and although I was convinced that our search would be fruitless, I encouraged the desire of who should be first to discover traces, and looked out as eagerly as the rest for them. Frequently as we passed the banks the exclamation,—there's a mark, there's a stick; listen, there's a gun! would be heard from either boat. Our hopes were at one time raised by the sudden appearance of a dog; and without thinking there were such animals in Australia, all exclaimed at once,—"There they are!" when soon after his master appeared in the shape of a native with his spear.

We all enjoyed this sandy beach, at which we arrived in the evening, on which we could have as much exercise as we pleased, for we had not been on shore for forty-six days; and it was a curious coincidence that on this very day (4th of August, 1840) Captain Stokes, when in command of the *Beagle*, was ascending the river at precisely the same spot!

Before daylight the next morning we were *en route*, and now we began to feel the inconvenience of thirst, our principal stock having been lost by the unfortunate accident to the boat. However a fresh S.E. trade wafted the boats along through some of the reaches with great velocity, alarming the whistling ducks and here and there a native in our progress.

The river was still salt, although I had expected to find it fresh much sooner, and we were in consequence without water for breakfast or dinner, and the boats' crews were suffering from constantly tasting the river water to ascertain if it were fresh. In the midst of our cares about 4 p.m. we landed, and found a muddy water-hole, containing about a gallon of—water (I was about to say), but it was a mixture exactly resembling preserved milk, and yet it was with much difficulty that the men could be prevented from taking large draughts of it. Two of them suffered much from it, as it appeared to contain a quantity of magnesia. It produced giddiness as well as other unpleasant sensations; but fortunately I had brought with me some medicines, which relieved them from the effects of the cream, as they called it, which they had so inconsiderately taken.

As we were pursuing our way up the river, and in order to avoid the tide were keeping close to one of the banks, a huge alligator suddenly sallied off it and disappeared in the river. Waiting for the whale-

boat, to place the crew on their guard against these visitors, I was about to tell them of it when the monster reappeared with his jaws against the side of the boat, and within six inches of where my elbow was resting; no doubt he had been attracted there by the sleeve of my white jacket. The next instant found me on my legs ready for a shot, but he was gone. Still we waited his reappearance, and in a few minutes were not disappointed. My gun snapped. Mr. Williams fired, and lodged a ball in the fleshy part under the cheek. He writhed and slashed the water furiously, until he appeared exhausted and sank, and we proceeded on our way satisfied with our exploit. Many more were seen during the day, but none afforded so much sport as the first. It was very difficult to distinguish them from floating logs of drift wood; their huge prominent eyes were the only unmistakeable features. They rose to the surface very gently, only showing the nose, eyes, and the crown of the head. But the first alligator which I saw in Albert River made an impression on me which I shall never forget.

At five in the evening, parched, tired, and weary, we arrived at the head of the Albert River, and having first examined the West arm, which was choked and impassable from dead trees, we followed the Southern one until the boat had scarcely turning room. Although disappointed in not finding Mr. Gregory and his party, we were rewarded by a supply of fresh water, having been long enough without it under a scorching sun to know by experience the misery of such a privation. Here we had a treat indeed, in abundance of excellent spring water; and those only who have been deprived of it under the circumstances we had been, knew how to appreciate the happiness it restored to our party.

I was now compelled to conclude that the *Tom Tough* with Mr. Gregory had not been here.

The remains of native fires recently extinguished were about us as we lighted our own on the elevated tongue of land which divided the arms of the river, fifty miles from our vessel; and the grass having been burnt around for many miles, fortunately for us, prevented our being surprised.

The boats were hauled off, the watch was set, and we were all glad indeed of a few hours' rest after our fatigues of the day.

But wearied as we were and in need of rest, our night was not free from care. In the boats our slumbers were now and then disturbed by the momentary expectation of an alligator's paw on the gunwale, and finding the water rushing over it as the weight of these monsters would bear it down. This was no pleasant inducement to sleep. Nor did the cry of night birds, the laughing jackass, or the hooting of owls, contribute to lull our senses;—but they all combined to help the wandering imagination, and with a jumble of alligators, night-birds, jackasses, and owls gradually fading away in visions, we slept as soundly under the care of a look out man in each boat, as we should have done in the best feather-bed ever prepared for us in England.

The morning of the 5th of August found us at our furthest en-

campment on the Albert River. While the necessary preparations were being made for breakfast, a short ramble over the plains afforded me an opportunity of being disappointed with them. They did not present to me that boundless luxuriance which I had been led to expect.

The whole country around was parched and arid, the long grass appeared to have been recently burned, whether by accident or design by the natives with the view of killing kangaroos and snakes for food was a subject for speculation. The large gum and acacia trees (except those overhanging the river) wore an autumnal dress. The land was furrowed by the deluge of waters in the rainy season, leaving huge trees rooted up and lying entangled with each other, the finest of the soil being thus transported to the river, and leaving on the surface of "the plains" a few flattened porphyritic stones, with quantities of perfectly round ironstone particles varying in size from one tenth to half an inch; and thus neither the importance of the stream nor the richness of the country, although now seen under the most promising and favourable circumstances, left any pleasurable impression. But this was in the winter, and the S.E. trade blowing. What it would present in the summer, during the N.W. monsoon hot winds and heavy rains, varied by a burning sun occasionally, may be imagined.

In the course of our rambles no sign appeared of an European encampment, nor any traces of white people having visited this place. I therefore concluded that the Australian Exploring Expedition, of whom I was in search, had not been here.

In the event of any of Mr. Gregory's party coming after us, a notice was secured in a bottle to inform them of my intended movements. It was suspended on an overhanging branch of the largest and most conspicuous tree, plainly to be seen by a boat coming up the river, but not by the natives on shore; on this same tree were cut in large letters the ship, date, &c.

Here, on this point Aridity, where only very recent traces of the aborigines were found by us, I left a spare bag of biscuits, also some pipes and tobacco, of which latter I do not think they know the use.

Our mission up the Albert River having thus been completed, we commenced without regret our passage downwards. As we passed the palm trees, they were such conspicuous objects that we hung a bottle containing a notice for Gregory on the summit of the highest (under the leaves in the spot occupied by the fruit). The tree was about sixty feet high, and it required considerable efforts and perseverance to reach the top of it under a temperature of 110°. Besides attracting attention, which the palm tree does, I considered the bottle would derive safety from the natives knowing there was no fruit to be obtained from the tree.

A small elevated spot, covered with long grass and a deep red bulbous creeper, afforded us a resting place for the night. Behind us were lagoons of brackish water fringed with dwarf mangroves, and here and there neat native bridges across the narrow parts. There

appeared to be abundance of wild fowl, and recent marks of natives; dead muscles shells, feathers of birds, and bundles of wood for fires, attested their vicinity! but we saw nothing of them, and had no desire for anything but rest.

Before the dawn of day on the 6th, we were again in our boats, and assisted by the ebb were making good progress, when suddenly up started a party of natives on the North bank, whose numbers soon increased to twenty-nine. They were all provided with spears, bomerangs, waddies, and shields, and broke out with so much noise and clamour, that I expected every moment nothing less than the bomerang whirling at us that the chief held in his hand. Two muskets were loaded without their perceiving it, in case of such an event. They endeavoured, by the most exciting gestures they could make, to induce us to land; but this I was not inclined to do. However, with the view of leaving a good impression on them for those who might come after us, I made signs to him that all his party should remove to a distance, and I would come and speak to him. This he did, and they all at once sat down on a small elevation, and watched our proceedings intently. The boats were now backed in, and presents of biscuits, pipes, tobacco, and fish-hooks, were made to him. But his delight was beyond bound when a large coloured pocket handkerchief was presented to him. He seemed distracted with joy, wrapping it first round his waist, then round his head, dancing most vigorously in the mud all the time, as well as its soft nature permitted him, for he sunk almost at every step or jump up to his knees. He cared not for his waddy, bartering it freely. In fact, a free trade had dispelled every symptom of anger, and we had become excellent friends. Their demonstration of violence most probably arose from an idea that every intruder they saw was an enemy.

As we continued our course down the river, after this friendly exchange of civilities instead of hostile demonstrations, they followed us on the bank, by which we had ample opportunity for observing them. The usual sign of the eye-tooth being removed indicating that they have arrived at a marriageable age (generally sixteen or seventeen) was remarked. Some had horizontal scars along the body, about five or six inches long, gradually lessening from the chest downwards, and altogether their appearance was by no means agreeable. I considered we had managed them fortunately, for a single act of hostility would have turned the tide of events. They had no women among them, which was a sure sign that their visit was not for peace. They kept company with us for fifteen miles along the banks of the river, until a creek prevented any further communication, when we gave them some parting presents, another coloured handkerchief, &c., in exchange for anything they had, and we parted excellent friends.

By the evening we had reached to about six miles from the entrance, and determined to pass the night there! We accordingly landed, while thousands of fish, somewhat resembling the mullet and smelt, were jumping out of the water around us, reminding us that we were without a seine.

Having now examined the Albert River, I should describe it as a very unimportant stream, the banks of which, for the first few miles from its mouth, are formed of mud covered with a dense mangrove bush, the monotony of which is slightly broken here and there by a few independent gum and acacia trees. Then assuming a South and S.W. direction, patches of cliff from ten to thirty feet high divide the mangroves, and change the scene, although small mangrove islets, with sandy spits, appear at low water. At forty miles up the river a complete change is evident; there is no vestige of a mangrove, but gum trees and acacias, with an occasional palm, the banks of the river with bamboos, rushes, creepers, and long grass. The river is in general tortuous, presenting at low water a far different aspect to that when the tide is high. At high water snags, dead trees, sand banks, mud banks, embryo islets forming round sunken logs, are all covered, and an unbroken sheet of water is then presented to the eye, that contrasts remarkably with the scene presented at low water.

The maximum last night was 67°, the minimum 55°.

In the evening the *Torch's* preconcerted signal was seen and answered by us. In the course of the night I was suddenly seized with sickness, and in the morning became worse, with symptoms of fever, and at early dawn directed the boats to be got ready, determined on hastening our return to the ship, and rejoicing that we were so near her.

As the boats moved along, I recollected having the evening before visited the deserted native huts close to our encampment; about four feet high, with the opening to the S.E., that would just admit a man, and the fire-place at the entrance.

We were soon at the mouth of the river, and by noon found ourselves once more on board the *Torch*.

To all of us, and especially myself, very unwell, this was a happy return; for ours had been no trip of pleasure! Exposed in light open boats, unsuited like their crews for detached service, half our provisions lost, our water short, and under a constant infliction of flies and mosquitoes, threatened by alligators and natives, and cramped in a small boat for six days, the thermometer 124° in the sun, and down to 55° at night;—these are not the conditions of pleasure parties, but rather tests for the constitution of a stranger to meet the call of duty; and this performed, the conclusion of our expedition was welcome.

It was however gratifying to know that this portion of the task was done; that any of Mr. Gregory's party or his schooner had not been here, a result I had anticipated from the first. But our visit will have the good effect of conciliating the natives, who will be in some measure accustomed to the white faces of those who follow us.

In the evening I had sufficient strength to walk the deck and make preparations for leaving the Gulf at daylight the next morning.

(To be continued.)

Refuge Harbours on the Eastern Coast of England.

On this neglected but important subject the following remarks from the *Daily News* contain no exaggerated statement of facts. Each year as it passes by adds melancholy confirmation of the truths which they aver, while apathy and opposition from whatever cause they might have arisen, have been perpetuating an evil which sacrifices life by wholesale, as a canker worm at the root of our naval power. To assist in making known designs which appear to be of benefit to the country in some way or other, has always been among the objects of this journal, and we turn with satisfaction to those efforts that we have repeatedly made in favour of a harbour at Redcar, where Nature herself has done half the work, inviting us to do the rest. How many lives of our seamen might have been saved had that project been effected, it would not be very difficult to form a fair estimate. And yet, instead of forming harbours which would not only be the means of saving lives but property, and become so many more valuable commercial depots, we have been busy in forming lifeboat stations,—all very well in *their* way and doubtless much to be desired, but what is the amount of life saved by them in comparison to what would be by harbours for vessels to run to? And as to *property*—all that is consigned to the waves, but the chances are in favour of *that* being insured. The remarks to which we allude state most truly,—

We need not describe the character of the Yorkshire coast. Most people have been to Scarborough, Filey, or Whitby, or have seen prints of Flamborough Head, and other parts of that stern sea-board. Durham and Northumberland are less universally known; but Scott's border writings, and the old traditions of Bamborough and Dunstanborough Castles, and Tynemouth Priory, and yet more, the heroic story of Grace Darling, must have given the untravelled world an impression of the formidable character of the whole coast-line. Those of our readers who have lingered beyond the bathing season in these districts, may remember observing the peculiar sensation which affects the residents when the year begins to break. As the autumn passes into winter, the dirges begin under which the popular heart quails. The rolling swell rouses the gloomy echoes of the caverns, and gives a tremulous feel to the everlasting rocks above, when they are trodden by the coast-guard or the daring fowler. The spray dashed up from the rocky arches which succeed one another, from headland to headland, may be seen with a glass from Yorkshire to Northumberland, when a gale is departing. At the first sound of the true wintry whistle of the wind and swirl of the sea, a sort of shiver passes through human frames, and the blood runs cold under the conception of the sights to be looked for. As the weather fouls, and the spray falls in flakes over gardens a long way inland, and penetrates the best-made windows which look seawards, scouts are out along the rocks and up on the galleries of the lighthouses, looking out for doomed vessels, or forming an opinion on the probable fate of colliers or other coasters

which have recently sailed. The women and children who are awaiting that opinion can settle to no business. The children may go to the shore, but the wives of the absent cannot bear it. They could not look on while a vessel was driving in. It may be too like what their husbands, brothers, or fathers are undergoing under the same gale; *for there is no harbour of refuge between the Humber and the Forth.*

This is the miserable, the shameful, the almost incredible fact, as stated in the petition which the seamen of that coast are even now presenting to Parliament. Through the driving gloom—amidst the glimpses opened by the gale—one and another and another vessel is now seen, now lost, and then seen again, a tossed speck in the myrtle-green waters and spreading foam,—too often making for the port where multitudes are gathering in dread of seeing them come in. Frantic signals are made from the shore, and frantic efforts are seen to be made on board, to avoid the perils on either hand, and hit the channel, disguised by the weather. Some get into harbour; but it always happens that some do not. The most dreary spectacle of all is that of a succession of them following precisely the same road to destruction; and it is a spectacle familiar to all residents in the ports whence this petition comes. Three or four ships fail to get round a point, or to escape a current; and while all yet looks much as it did five minutes before, a cry of anguish breaks out along the whole range of rocks, and women wring their hands on the shore, and turn away homewards. The vessels are edging towards the fatal precipice on the one hand, or the ruinous sands on the other, and the men are seen to take to the rigging. Then the lifeboats go out amidst cheers, and make for the vessels nearing the sands. One brig falls to pieces before the boat can reach her. A collier goes right over, with all her sails set, and is washed up so that her topsail first touches the shore. In such a case no men are found on board, unless some may still be clinging to the bulwarks, under incessant ducking. A ship jammed under the precipice allows no chance of life but by the cradle overhead, and fearful is the transit in mid air, amidst the tumult of the storm, the blinding spray, the deafening roar, and the bitter cold. Rumour soon passes the numbers of the lost far inland; whole crews —four, six, or eight men; parts of crews—five out of seven, and so on; scores of lives lost within view, and Heaven only knows how many more between this spot and the Humber on the one hand, and the Forth on the other. There is no refuge between, nor any harbour which will serve distressed vessels at low water. When all is over, the detestable last scene exasperates the sorrow and the shame of the whole. Men, women, and boys are seen ascending the rocks, crossing the fields, trooping along the sands laden with booty from the wrecks —sail-cloth, timber, and spars, ropes, and whatever even children can carry.

Looking to the statement of the case in figures, as given by the authorities on the spot, it appears that sometimes one-fourth, and frequently of late half the entire number of wrecks and lives lost on

the coasts of the United Kingdom, is on the east or north-east coast of England. In 1852, a fourth of the whole occurred within a radius of seventy miles of the Tyne and Wear; and in 1854, no less than 110 wrecks took place within that area. How is it possible that, on such a coast, supplying such a traffic from the great coal-field and its commercial operations, there should not be a single harbour of refuge between the Forth and the Humber? The petitioners exhibit the amounts voted for the support of such harbours all round our islands, some of them in districts where the danger and the traffic are nothing in comparison with those of the coal region. It appears that the casualties and loss of life are on the increase, out of all proportion to the simple expansion of commerce. There are more collisions, from the multiplication of vessels, and especially of steamboats, and from the consequent greater thronging of the ocean paths. The insufficient supply of good native seamen causes an extensive employment of foreigners, and introduces a new element of danger in unintelligible language, and new and strange methods and manners. Worst of all, perhaps, is the temptation to send out unseaworthy ships. This is the matter most vehemently complained of by the petitioners; and it is no doubt a grievous hardship that they must go to sea, on occasion, in a leaky ship, or go to prison for refusing. On the other hand, the owners complain that the seamen are apt to be capricious, and take away the character of a vessel to excuse their being off their bargain. Both parties being thus dissatisfied, it seems tolerably clear that some method of supervision of vessels is the thing wanted—some authority which shall decide, when appealed to, when vessels cease to be seaworthy. This is what the petitioners desire; and if their employers are sincere, they will probably support the demand.

The operation of the recent Merchant Shipping Act will reduce in time, we may hope, the perils from ignorance in commanders and incompetence in men, if only a sufficient supply of seamen can be kept up. While the number is so inadequate that foreigners are picked up, and bad natives borne with, as the only way of getting vessels manned for sea, it is a fearful and humbling consideration that hundreds of seamen are needlessly lost every winter. For the deaths from preventible causes in that profession (hazardous, at all events,) there is no excuse whatever, in this age of science, skill, wealth, and professed humanity. In old times, when we did not know all about bilge-water, salt meat, and the mischiefs of damp, dirt, and confined space, maritime diseases were regarded as dispensations of Providence, and put up with accordingly; whereas now, deaths from scurvy and ship fever produced in such ways would justly be regarded as manslaughter. In the same way it is too late now to charge Providence with the thousand deaths a year of seamen which take place on our coasts from preventible causes. Of old, the gale and the foundering at sea were prayed against as modes of death appointed to be submitted to. Now, when we are actually making harbours of refuge elsewhere, and when crews demand that vessels shall be examined a d leaky ones condemned, men are as responsible for the larger pro-

portion of deaths on our north-eastern coast as they would be for murder by ship fever and scurvy from the old causes."

Leaving the other numerous causes of the loss of life alluded to in the foregoing, and adhering to the one huge evil—the deficiency of refuge harbours on our eastern coast, we find the following remarks in the *Nautical Magazine* of 1833 on Mr. Brooks's plan for a harbour at Redcar. After alluding to the great advantages, pointed out by that gentleman, that his project had received from the hand of nature, we concluded by saying,—

"We have always been favourably inclined towards these bold and spirited measures of supplying protection for our numerous shipping that nature has denied us, and it is with much satisfaction that we find the plan for an asylum harbour at Redcar appears with all these recommendations (as pointed out by Mr. Brooks, the Engineer,) besides that of an easy access at all times of tide." * * *

"In addition to what we have advanced in favour of this harbour we will close our remarks with the following statement:—

"On the 12th of October, 1824, a gale commenced from the E.S.E., which afterwards got round to the E.N.E. The result was that 113 sail of vessels were wrecked or driven on shore between Scarborough and the Tyne: of this number 37 went ashore in the Tees Bay. Had a harbour at Redcar then been formed, ***the whole of that large fleet could easily have found refuge in it.***

And since then we may ask how many more? for to this day not a stone has been touched in the good cause of forming a harbour there!

Such was the opinion expressed by this journal twenty-four years ago on a project which, had it been carried into effect, it would not be difficult to arrive at a fair estimate of the number of seamen's lives and the amount of property that would have been saved by it. Nor have we been backward, as disinterested spectators, on several occasions since, in reiterating that opinion, and expressing our sorrow, on national grounds, when, by some untoward measures, the attempts to bring forward that plan have been defeated;—for as often as they were so, more lives and more property were virtually required to be sacrificed to the winds and waves, saving and excepting what trifling portion of either might be picked up by lifeboats! No doubt these are desirable enough in their way, but England, as a maritime country, will profit more from harbours to save from wreck and to promote commerce than by establishing life-boat stations, and we yet hope to see the lethargy of years shaken off, in the duty we owe to our country by the furtherance of her commerce and the protection of her merchant seamen, andto see these harbours shortly in course of construction every where on our coasts where nature herself has virtually recommended they should be.

The Korea.

Korea which forms a part of the Chinese empire, extends from 124½° to 130° E., and from 33·9° to 43° N., has hitherto been considered a part of the world the most impenetrable to European travellers. Those who have attempted to overcome the obstacles which it presents have found them greater even than those offered by Chinese or Japanese. The body of the country is formed by a long peninsula, 546 by 160 English miles; the capital of which is called Han-Yang-Tching. The western part of the kingdom is composed of numerous islands, known by the name of the Korean Archipelago.

This archipelago, discovered several years ago by Captain Maxwell, comprises four principal groups: namely, James Hall, to the northward; Clifford, middle; Amherst, to the South; and Broughton, to S.E. The last group appears to be the most populous, and includes an island, the largest of the whole, (Quelpaert,—Neusa by the Koreans,) remarkable for its high peak, its numerous population, and its fertile soil; it is considered geographically as belonging to the group.

The country, however, is but very little known. I visited it for the last time in August, 1856. Leaving the eastern coast of Tartary, and making the S.E. side of Korea, we anchored in the bay on the N.E. part of the island, in 39° 16′ N. and 125° 10′ E. (called Young Ching Bay in the chart),

This bay was visited by Broughton, and also by the *Capricieuse* in 1852. It is sheltered on the East by the islands to the northward —the Sugarloaf Island and the Pecheurs. A channel, about ten fathoms deep, bounded by the N.E. isles, leads from the outer anchorage (about 1½ mile) to the northward and N.W., into a large bay which receives the waters of the most considerable river of the country. There is good anchorage at three miles from its mouth in 6½ fathoms, mud, and perfectly fresh water. The surrounding country is highly cultivated and densely populous, particularly about the mouth of the river; and on a marshy island at the left bank of its entrance is a large town, which has the appearance of being the commercial sea-port of a considerable town in the interior, and which the Koreans told us is the principal one of the province.

Among trees, the apricot, peach, pear, cherry—both in a wild and cultivated condition,—oak, elm, and wild vine are the most common. Corn, maize, and rice are cultivated on the banks and were found, besides the foregoing, at nearly all the places we visited.

The tide in the bay is very weak, rising only a few feet, and there is little or no current—their effect being only found in the bay.

After visiting successively many points of the coast, and, among others the bay of Pin-ghae, we arrived off Cape Klonar, where the coast bends to the S.W. and forms the harbour of Chodan, which we had already visited in our cruise of 1855. This harbour lies N.W. and S.E., its entrance being distinguished by high bare hills North

and South of each other; the southern one belonging to an island which appears part of the shore, and at the distance of four or five miles fronted by peaked rocks which may be approached very close, the lead giving 16 fathoms at a cable's length to the southward of them.

The further South, the worse becomes the appearance of the country. The hills to the northward are covered with a rich vegetation, but here their arid faces attest the violence of the N.E. winds from which they suffer in the winter. Notwithstanding this, villages are numerous and junks are plentifully at anchor in every creek, showing that these ill effects extend only to the slopes of the hills exposed to the sea, and that the soil of the interior loses none of its fertile character.

On our way to the northward we were enabled to anchor in the gulf, to the northward of which the numerous islands of the Korean archipelago extend. We passed round these islands to reach the coast of the continent. From the 28th to the 31st of August, in 36° 55′, 37° 30′, and 38° 7′ N. lat., we attempted to approach it; but our sailing vessel, drawing a good deal of water, grounded on the banks, which we found varying from forty-three to thirteen fathoms of depth. This, and bad weather, baffled all our efforts.

The following days, in which we were at anchor near the Tchodo bank, brought us a series of storms, torrents of rain, and a strong N.E. wind, which rendered our situation dangerous, and on the 5th September we made sail for Shanghae.—*Moniteur.*

The Navigation of the Elbe.

In some of my former letters I have laid before your readers the history of the rise and progress of Harburg, and was perfectly justified in ascribing its present blooming condition to its exemption from the payment of Stade dues, a privilege which the Hanoverian government has thought fit to grant on the *sic jubeo, sic volo* principle, though whether it is not an infringement of the treaty of Dresden of 1844, and whether the other signitaries of that treaty have not reason to feel aggrieved at it and a right to protest against it, is the business of their diplomatists to decide. Merchants are seldom deeply read in public law, but generally shrewd enough to be able to take a good, common sense, practical view of a question however complicated, and in this case they condemn it as an unjustifiable measure.

Let it not, however, be thought in England that it is this concession to our neighbours on the other side of the Elbe, which has called forth the agitation against the existence of the Stade dues. It is true that the growing importance and rapid rise of Harburg are be-

ginning to be seriously felt, and although on the whole Hamburg has no reason to complain of a falling off in her commerce, as our annual tables give a most favourable view of the increase in the value of imports and exports, in the number of ships that bring us rich cargoes from all parts of the world, and in the rapid increase of our own mercantile navy, yet there is no doubt that all these advantages would have been much greater had it not been for the competition offered by Harburg. But it is a fact on which I deem it right to lay great stress, and I request your readers to understand distinctly, that Hamburg has ever been opposed to the existence of the Stade dues; and although her own ships and their cargoes, when belonging to her citizens, are exempt from the payment of that duty, she has over and over again protested against their continuance centuries ago, and therefore long before the existence of Harburg, whose foundation as a place of business is only a creation of five years' standing.

But it is not from the competion of Harburg, nor from the continuance of the payment of Stade dues, that Hamburg has to apprehend anything serious. A danger from a totally different quarter threatens her complete ruin within a few years and from the hand of nature. Our dykes, it is true, protect the low country from the incursions of the sea under ordinary circumstances, and we have nothing to fear from earthquakes or pestilence. But the rapid accumulation of sand in the bed of the Elbe is going on silently, and without interruption day or night. There are two or three places where the sand banks have already been deposited in such masses as to render the passage of the larger description of sea-going vessels utterly impossible, and all ships drawing more than fourteen feet of water—the greatest depth at ordinary high tide—must go down below the bar, and there complete their cargo, which is sent down after them in open barges; and this is attended with great expense, danger, and loss of time. Why, even the London steamers—vessels of about 500 tons, on the average—find it impracticable to come in or out over the bar from a third ebb to two-thirds flood tide; and this is the reason why two successive steamers never sail at the same hour of the day, as passengers know to their cost. The vessels may, and often do, make the most splendid passages to the mouth of the Elbe, but it avails them nothing, as in that case they have to anchor for some hours, or else proceed up the river at half speed, so as to arrive at the bar when there is water enough for them to pass.

It must not be supposed that the existence of this danger has escaped the observation of "the Fathers of the City," or that the merchants and shipowners have been backward in making their complaints, which have been both loud and numerous. Commissions have been appointed over and over again, plans proposed and taken into consideration, soundings made, and a couple of steam dredgers got over from England, and set to work during the summer, but it is generally found on the disappearance of the ice that the deposit of mud and sand during the winter has not only filled up the channel,

and rendered nugatory all the work of the previous summer, but that the depth of water on the bar has absolutely decreased.

This is where the danger really exists—a danger not only threatening in a very few years to ruin completely the trade of this city, but it cannot fail to carry in its wake the short-lived prosperity of our competitor, Harburg, and of course involve the abolition of the Stade dues.

Want of energy on the part of the authorities of this city has often, and on many different occasions, been thrown in their teeth, and not without reason. In this case it is the more unaccountable, as the commercial prosperity, and even the very existence, of Hamburg is at stake; for it is hardly needful to suggest that when she descends from that proud position she at present occupies in the scale of the great commercial marts of the world, she will soon lose her political independence, and fall an easy prey to her powerful neighbours, who for many centuries have waged long and bloody wars for her possession.

After a great deal of talking and repeated discussions both in the Senate and out of doors, it was resolved to obtain first-rate advice as to the means to be taken for avoiding the peril which threatens us more and more every year, and for this purpose the eminent English civil engineer, Mr. Rendel, was invited to come over to examine the state of the navigation of the Elbe, and make proposals for averting the danger. A commission of such importance could not have been entrusted to more able hands. That gentleman accepted the honourable mission, came over and spent some months in studying on the spot the nature of the difficulties to be overcome.

More than a year and a half has now elapsed since Mr. Rendel sent in his most able report to the Senate, with a detailed account of his plan for remedying the navigation and preventing any future recurrence of the deposit of sand and formation of a bar in the river. The report was printed and laid before the Burgerschaft when convened the next time, not with any proposal on the part of the Senate for its being adopted, but simply to bring it under their cognizance; and there the matter rests.

Mr. Rendell's plan consists in constructing a longitudinal dam or dyke in the middle of the Elbe, beginning at the island of Finkenwerder, a few miles below Hamburg, and extending down for a distance of nearly forty miles. This would contract the main body of the stream into about half its natural limits, and the constant rush of the ebb and flood would not only sweep away the present sand banks and other existing obstacles, but prevent them from ever forming again, and thus deepen the channel and constantly keep clean the bed of the river.

The plan appears practical and plausible, even to unprofessional persons, and I may add it has never been attacked by our hydraulic engineers. The Bürgerschaft received the communication from the Senate with evident satisfaction, and would willingly have voted the

needful funds if called upon to do so. The execution of works of such magnitude of course require a large pecuniary outlay. Mr. Rendel estimates the expense at £680,000, distributed over a period of seven years, which it would take to complete this Herculean labour, or about £100,000 annually.

In a recent letter I gave you the particulars of the sums annually expended by Hamburg for improving the navigation of the Elbe, amounting altogether to upwards of £30,000, whilst Hanover pockets £33,000 a year from the Stade dues without doing anything as a set off. Now, as it is to be foreseen that our commerce will shortly be liberated from the further payment of the latter, and as a large portion of the former would not be required on the completion of Mr. Rendel's plan, it may be safely assumed that our trade will thus become eventually lightened to the extent of about £45,000 per annum. There is little doubt that the Bürgherschaft would be easily induced to continue to bear this heavy onus for a certain limited number of years, if applied for the purpose of executing Mr. Rendel's plans. A loan for £700,000 would cost about £30,000 per annum for interest, and there would consequently be left over about £15,000 for a sinking fund, so that the whole of the debt might be redeemed in fifty-three years. It is true that this is a long time to look forward to, and few or none of the merchants of the present generation can expect to witness the complete redemption of such a loan; but the danger has assumed such gigantic proportions that it has now become a question of life and death for the existence of Hamburg; and it is for the burghers to choose the lesser of two evils, for there cannot be a shadow of doubt as to the fact that, unless some vigorous measures are taken—and taken promptly—the evil will increase from year to year, and the expences be raised probably in geometrical progression. Our merchants will find it far less expensive to secure the future existence of the commerce of Hamburg, by an immediate sacrifice, than to delay it from year to year, with the certainty before their eyes of being obliged "to shut up shop," and see their warehouses empty, and the port deserted in a very short time.

Hanover is perfectly aware of the present state of the case, and sees the danger threatening her pet port of Harburg, and the further existence of her cherished Stade dues, which is, in her opinion, much more imminent for the latter, from the abovementioned natural causes, than the agitation going on in the press and the opposition offered by the United States. For this reason she considers it more important than ever for her to save what she can from the impending catastrophe, and has again taken up the project of avoiding the evil, by the construction of a navigable ship canal from Stade, which is situated below the obstructions in the Elbe up to Harburg; and all this summer engineers have been engaged in making the needful surveys, and tracing the line of the proposed canal, together with drawings up the estimates and making the preliminary arrangements, calculating—and perhaps not without reason—that Hamburg will never be induced to spend so large a sum in the execution of Mr. Rendel's magnificent

but expensive plans. There is also a plan now under the consideration of the Hanoverian government for an extension of the railroad from Harburg down to Stade. Whichever plan may eventually be decided on, Hanover will succeed in averting the danger which now threatens the existence of both Hamburg and Harburg, from the latter at least. It is therefore high time for the Senate and citizens of this great commercial mart to bestir themselves, and no time should be lost in contracting with Mr. Rendel for the execution of his plans, and commencing the works in downright earnest next spring.

Daily News.

MAGNETIC VARIATION FOR THE YEAR 1856.—*From the Astronomer Royal.*

Table showing the mean monthly westerly declination, or westerly variation of the magnet, at the Royal Observatory, Greenwich, in the year 1856.

January	21°	44′	28″	July	21°	43′	39″
February	21	44	46	August	21	43	7
March	21	44	29	September	21	42	26
April	21	43	35	October	21	40	58
May	21	43	3	November	21	40	9
June	21	43	56	December	21	39	47

The mean variation has been found by the application of corrections (deduced by Mr. Glaisher from two-hourly observations taken during seven years, 1841–7,) to the mean readings taken at 9h. a.m.; 1h.; 3h.; and 9h. p.m. daily.

G. B. AIRY.

THE RUSSIAN SUNKEN FLEET AT SEBASTOPOL.

Foreign accounts differ greatly with regard to the works undertaken for the raising of vessels in the harbour of Sebastopol since the peace. We shall take advantage of this circumstance to explain from certain documents the true state of the case, having derived our information from a correspondence, dated the 10th of May last, from the borders of the Black Sea.

We know that after the battle of Alma the General-in-Chief commanding the Russian army, caused five vessels of his fleet to be sunk at the entrance of Sebastopol Harbour, in order to render it impracticable to the vessels of the Allies. His object was entirely gained. Afterwards, however, the Russians, finding that soundings were taken during the night by Admirals Bruat and Lyons, and fearing that the

obstacles they had opposed to them were not sufficient, sunk a second line of vessels inside the former, and afterwards a third, which reached as far as the battery constructed at the South point of the port. For these two last lines of vessels they employed not only ships but also frigates and transports, which they justly considered as forming a portion of the old materials of the fleet.

Lastly, on the night of the 8th and 9th of September, which followed the taking of the Malakoff and the town of Sebastopol, the Russians sunk the rest of the ships of war remaining in the harbour in the South port and in all the bays of the North and South shores. Amongst the ships of war which disappeared at that time, may be mentioned the *Twelve Apostles*, the most splendid vessel of the Black Sea fleet, bearing the flag of the Admiral Commanding-in-Chief; the *Tchesmé*, the *Jagoudit*, and the *Angel Gabriel*; the *Maria*, 84, had been burned by a shell from the French three days previously.

A certain number of vessels which were anchored near the land and in a small depth of water, were run aground rather than sunk, and were only slightly damaged. These vessels have been raised and repaired at Nicolaief. Amongst them we may mention the *Pruth*, steamer, of 100 horse power, the *Chersonese*, the *Reni*, the *Danube*, the *North Star*, the *Silatch*, and the *Ordinanetz*, all second class steamers. With regard to the vessels, frigates, and ships of different kinds, whether steam or sailing vessels, which were sunk to form the first of the three lines of vessels during the siege, it has been found impossible to raise them. They are deeply imbedded in the sand and loaded with stones and heavy materials, which were put on board in order to sink them to the bottom of the harbour. They cannot be of the slightest use, and as their masts and rigging are taken away, they will offer no obstacles to navigation, which is now limited to merchant vessels, since, according to the terms of the treaty of Paris, ships of war are excluded from the Black Sea, with the exception of a certain number of light vessels specified.

At the time of the destruction of the Russian fleet, it only comprised thirty steamers, amongst which was one frigate, the *Vladimir*, 400 horse power, which deserved the reputation it has gained; two corvettes, *Bessarabia* and *Gromonossetz*, 260 horse power; one gunboat, the *Argonaut*, and some steam-tugs, from 120 to 60 horse power. All these vessels have been or may be raised with more or less success, and when repaired may take their places in the Russian fleet in the Baltic, and become serviceable. To these the officers charged with the work of raising vessels are directing all their attention.

With regard to the ships and sailing vessels which constituted the former Black Sea fleet, their recovery is impossible; and even if it could be achieved, their use to the Russian Navy would not be in proportion to the expense necessary to do it.

With regard to the reconstruction of the sea and land forts which defended the town of Sebastopol, taken by the allied army, and mentioned by several foreign journals, it is pure invention, circulated periodically. All who visit the Black Sea and the Crimea now acknow-

ledge that the Russian Government has only done what it was justified in doing, and that it adheres in a most loyal manner to the stipulations of the treaty of Paris.

The port of Sebastopol is now almost entirely closed to trade. It is not so advantageous for commerce as that of Kamiesch, and does not contribute to any of the industrial wants of the country.

With the exception of the sailors and officers of the fleet occupied in raising the vessels, we see only a few captains of coasting vessels, and some fishermen, who sell their fish to itinerant merchants to take to the farms and villages of the interior.

The point to which all the efforts of the Russian Government are at present directed, is Theodosia or Kaffa, an excellent port, situated further South, which should be one of the termini of the railroad, and which promises to become a port of considerable maritime and commercial trade.—*Moniteur de la Flotte.*

THE GREAT COMET.

The following letter has been communicated by the eminent German astronomer, Von Littrow, to the *Vienna Gazette*:—

Inquiries have been so often made of late about the great comet, the arrival of which has been expected, that we think it desirable to state briefly the actual state of the case. About the middle of the last century observers first perceived the resemblance between the orbit of the comet of 1264 and of that of 1556, and began to conjecture that they were, in fact, one and the same body, which accordingly might be expected to appear every three hundred years. Calculations subsequently made confirmed this view, but, owing to the extremely defective observations made, those imperfect data which we have received concerning those two comets could serve only as a ground for conjecture. The whole question was sinking into oblivion, till the undersigned happened to discover last year three new sources of information respecting the comet of 1556, which, considering their date, contained definitions unusually clear and perfect. The undersigned, however, ventured even at that time to state his opinion that valuable as this discovery was in itself, and serviceable as it would be for the recognition of that cometary body in case of its reappearance, there was little or no ground for a prediction beforehand.

Several astronomers, however, in consequence of these fresh sources being opened to them, were induced to investigate the subject anew. M. Hoek, at Leyden, obtained some results most unfavourable to the supposed identity of these comets of 1264 and 1556; and Signor Carlini, at Milan, likewise started some doubts not easily to be solved. But, on the other hand, M. Valz, at Marseilles, disputes Hoek's views, and finds the return of the comet probable. Professor Hind, in London, is also of opinion from these fresh data that the original conjectures

are corroborated, and it would be excessively difficult to say which of these antagonistic opinions is the correct one. Whether the decision incline this way or that way must depend entirely upon rather arbitrary explanations of the old authors; and only this is certain, that it is possible, although it is anything but certain, that we may see the comet between the present year of 1857 and that of 1860. The greatest astronomical authority of this century, Gauss of Gottingen, has always been of this opinion. Hitherto, therefore, so far as the matter has publicly transpired, the whole subject would be reduced to a little useless talk and expectations prematurely excited.

But recently a certain individual, having nothing better to do, thought proper to invest it with renewed interest by giving out, absurdly enough, that the comet would reappear on a certain day, the 13th of June this year, and, at the same time, he connected the event with some piquant predictions about the destruction of the world, and the like. Unfortunately our nineteenth century, notwithstanding its much-vaunted enlightenment, still contains a great deal of soil only too favourable for the growth of such seed. The false prophet has found credulous listeners, and, what is yet worse, called forth unbidden comforters.

Now upon this last-mentioned question let us remark in a few words, that from facts which fortunately render the vacillating arguments of the physicist Babinet quite superfluous, it is irrefutably certain that the matter of which comets consist forms an extremely loose texture, that comets are in reality not coherent masses, but mere agglomerations of small corpuscules, separated from one another by large interstices. Highly improbable as it is, because it could only take place by a concurrence of circumstances hardly conceivable, that a collision of the earth and the nucleus of a comet should ensue. Such an event, far from entailing destruction on this world, could only be compared at the most with the fall of a meteor, and in its effects would barely equal those produced by our thunderstorms and hurricanes. A mere passing of the earth through the luminous appendages of one of these bodies, which it is true might more easily happen, would be unattended by any injurious consequences, since the matter of which comets consist is not coherent substance, nor is it even an atmosphere such as we could not inhale.

With regard to the comet of 1556, its orbit is so situated that it cannot approach the earth within some five millions of miles, and therefore in its nearest possible advance would still be about nineteen times more remote than the moon. It is, to say the least of it, a waste of words, if it be not practising upon the credulity of ignorant people, to attribute to this most innocent among the innocent heavenly bodies evil designs of any sort against this earth of ours. Incredible as it may appear, we hear it from too trustworthy a source not to believe it, that in Austria, too, the country folks, in expectation of what is to happen, have ceased to till their fields, and are wasting their time in idleness. Such a delusion might provoke a smile, if it were not too lamentable. Whatever the use of comets may be in the universe, as-

surely it is not that of liberating us men from the care of the future. Besides, a man must be very young who has not already outlived without injury many similar destructions of the world.

To conclude, I take this opportunity of mentioning, by way of correcting some reports in the journals, that the comet recently discovered by Professor d'Arrest at Leipsic, and which is now visible, is an entirely different body from the comet of 1556—that the Emperor Charles V., long before the appearance of that comet in 1556, had taken the resolution of abdicating his crown, and that the very rumour of his doing so was craftily taken advantage of by the astrologers of that time to connect the expected event with the comet. It is natural that inquiries should have been made upon the appearance of every comet during the last few years, in order to see whether it had anything in common with that of 1556, but in no one instance as yet has any sufficient proof of its identity been perceived.—*Daily News.*

Memorandum on the Navigation Dues from Vessels Navigating the Dardanelles and Bosphorus.

This day, September 1, 1856,

We, the undersigned, Admiral Mustapha Pasha, President; Cabouli Effendi, first interpreter of the imperial divan; Captain Spratt, English inspector; and Captain Garbeiron, French inspector; have assembled, for the purpose of regulating the duty or toll to be paid by merchant vessels on the coasts of the Ottoman empire.

The tariff has been fixed as follows:—

Art. 1. Vessels coming from the Archipelago, and touching at Constantinople, or any intermediate point, and reciprocally, vessels going from Constantinople or any other intermediate point to the Archipelago, per ton, 40 paras; above 800 tons, 800 piastres; and 20 paras for every ton in excess of 800 tons.

Art. 2. Vessels, which on their way from the Archipelago to the Black Sea, and *vice versâ*, may pass through the Dardanelles and the Bosphorus; per ton, 60 paras. Above 800 tons, 1,200 piastres; and 30 paras for every ton exceeding the 800 tons.

Art. 3. Vessels going from Constantinople or from any intermediate point to the Black Sea, and *vice versâ*, per ton, 30 paras. Above 800 tons, 600 piastres: and 15 paras more for every ton in excess of 800 tons.

Art. 4. Vessels frequenting the gulphs of Saros and Enos, also the ports of Samothrace, Imbros, Tenedos, and Sigri, without entering the Dardanelles, per ton, 12 paras; above 800 tons, 240 piastres; and 0.06 paras per ton in excess of 800 tons.

Art. 5. Vessels in the local coasting trade, and plying in the waters between the entrance of the Dardanelles and Constantinople, 20 paras per ton.

Art. 6. Vessels plying in the waters between Gallipoli and Constantinople, 15 paras per ton.

Art. 7. Vessels leaving Kara-Burnou or Kili in the Black Sea for Constantinople, and *vice versâ*, 15 paras per ton.

Art. 8. Ships subject to an annual contribution.—Vessels sailing in the waters between the line connecting Fener-Bagtché with St. Stephano and the entrance of the Black Sea. The annual toll is fixed as follows:—Vessels of from 5 to 49 tons, 6 piastres 10 paras per ton; vessels of from 50 to 99 tons, 7 piastres 20 paras per ton.

Art. 9. Tugs will pay a yearly duty of 1,825 piastres.

Art. 10. Steamers destined for the conveyance of passengers in the Bosphorus to Princes' Islands, to St. Stephano, &c., will pay 500 piastres per annum.

General Observations.

Vessels under five tons are duty free. It is to be observed that the duty is to be paid both coming and going (*i. e.* both ways).

As 36 lighthouses have to be maintained, the half-duty will be raised as soon as the half of the lights (18) are ready, and full duty as soon as the complete number is reached.

MUSTAPHA, CABOULI, SPRATT, GARBEIRON.

ISLE MAYOTTE, *24th January.—Extract from the Moniteur de la Flotte.*

Serious disturbances are stated to have taken place at Anjonan. Some members of the Sultan's family have revolted against his authority, and endeavoured to dethrone and assassinate him. His cousin Prince Mougué-Alaoui fired at him and the ball passed above the Sultan's head. Mougué-Alaoui then took flight, killing the sentinel who opposed his progress. The following day hostilities commenced between the people of the Sultan and the partizans of his adversary. After having fought all day they left seven men on the field, and victory was declared for the Sultan.

Some days after propositions were made for a reconciliation by a third party. The Sultan appeared willing; but scarcely had Prince Mougué-Alaoui entered the apartment where the reconciliation was to take place, than he was seized, loaded with chains, and committed to prison. The Sultan also seized upon Prince Sidi-Mouken, who had declared against him.

These events appear to have been caused by an abuse of power on the Sultan's part, who banished from his presence some members of his family. Prince Mougué-Alaoui then decided upon raising the standard of revolt.

Mougué-Alaoui has been strangled in prison; Abdalla, his brother, has been assassinated; and Said Mouken restored to liberty.

Arctic Search.

The following is an extract from a letter addressed by Captain M'Clintock to Mr. S. R. Graves, the Chairman of the Liverpool Ship-owner's Association:—

I intend to sail about the end of June, from Aberdeen, and proceed to Barrow Strait,—ascertain that the provisions, stores, and boats left at Port Leopold and Beechey Island by the recent searching expeditions are in good order, in the event of my having to fall back upon them,—examine the state of the ice in Peel Strait, and, if practicable, proceed down it into the unknown area.

Should I not succeed here I intend to return to Port Leopold, and proceed down Prince Regent Inlet to Bellot Strait, and there make another attempt to pass into and through the field of search to Victoria Land, where I shall winter, and in the ensuing spring, before the thaw sets in, complete the entire exploration and search by means of sledge drawn by men and by dogs.

In endeavouring to reach Victoria Land it is my intention to avoid, if possible, any risk of becoming involved in the ice; and, should I not succeed in reaching Victoria Land, I will return to Bellot Strait to pass the winter, as we know by experience that the retreat of the ship from there amounts almost to a certainty. From Victoria Land the homeward voyage is equally certain, but by way of Behring Straits.

The vessel is a three masted screw steamer yacht, with fore-topsail and topgallant sail; the topsail reefs from the deck; decidedly a clipper; diagonally built, 132 feet long over all, 320 tons builder's measurement, with a light draught of water; trunk engines, of 30 horse power; crew numbering thirty individuals, including an Esquimaux interpreter.

Almost all will be old shipmates of my own in former Arctic voyages; they shall be fed and clothed as in the Government expeditions and receive double pay. I, therefore, anticipate no difficulty in keeping up precisely the same discipline as that which we found to answer so well in the three Arctic expeditions in which I have served. The vessel is now in the hands of Messrs. Hall, Aberdeen, for the purpose of being fortified, by means of doubling, extra hold beams, stringers, &c., to enable her to withstand ice-pressure; and upwards of 100 men are at work upon her. All Arctic men agree in pronouncing her to be the best adapted vessel ever selected for Arctic service. From her sharp midship section she will rise to ice-pressure, which would crush in the sides of a wall-sided vessel. Her speed under steam, when deep, is expected to be six knots.

She will carry five weeks' fuel for full speed, and two and a half years' provisions—being enough to last us for a second winter, should we unavoidably be detained. I believe I have nothing more to add, except to say that the volunteer offers of service from officers, seamen, and landsmen, are very numerous; and as I have already secured the very best of *matériel*, so I hope also to be fortunate with the *personnel* of the expedition.

The Kooria Mooria Islands.

The following letter, under date of May 3rd, has been addressed to the *Bombay Telegraph and Courier*:—

Sir,—In your paper of the 28th of April, 1857, you published the terms of arrangement between the committee of the Shipowners' Association and the representatives of the lessees of guano on the Kooria Mooria Islands.

In 1836 I carefully surveyed and examined these islands, and the chart I completed, including the bay and whole group of Kooria Mooria, was published under the sanction of the Hon. East India Company. I also remained for some little time at Hullaniyah, the largest of the said group, mixing with the inhabitants, and becoming intimately acquainted with every particular relating to their locality. It is, therefore, from a wish to prevent disappointment to the enterprising spirit of the mercantile and shipping community, that I offer you a brief description of the inconveniences to be apprehended on many points, as reported in a journal kept during the period of my survey.

It is said that the Imaum of Muscat has lately made a transfer of the Kooria Mooria Islands. I would inquire by what right he has done so? because it appears to me from all I could ascertain on the spot that his Highness had neither hereditary nor moral claim to attach these islands to his possessions, the property never having belonged to himself or to his forefathers, and this rumoured transfer it is that induces me to trouble you with an outline of the information collected by myself in 1836, lest the Shipowners' Association may be led into error as to the advantages and disadvantages to be anticipated in carrying out the measures they propose to adopt.

In my journal I find I have stated that besides the boats occasionally touching here (Hullaniyah) this island is sometimes visited by a boat belonging to the Khalfan family,* of the Maharah tribe, who claim the Kooria Mooria group as their hereditary property, the principal members of this family at present being—Mahomed ibn Ali ibn Seyed ibn Omar; Mahomed Ali ibn Seyed ibn Omar; Najim ibn Ahmar.

These chieftains reside at Ghazir, and their periodical visits to the islands are made for the purpose of claiming any ambergris the inhabitants may have collected, as well as to obtain from them whatever money they may happen to have received in exchange for salted and dried fish; in return for which the natives are frequently rewarded with a small quantity of tobacco, dates, or coarse cloth, the liberality of the donors being generally regulated by the amount of tribute they may have succeeded in extorting.

I fear, also, that the position of the Kooria Mooria Islands for

* For an account of the Khalfan family see *De Lacy Chrestomathie Arabe*, 2nd edition, vol. iii., p. 357.

many months in the year would be found hazardous in the extreme—having an open anchorage, and at times a dead lee-shore, added to the probable interruptions of the tribe before mentioned, who have hitherto evinced great jealousy of their rights, and are not backward to resent any encroachments thereof—as instanced in the case of the Pore Bunder boat.

The islanders themselves are inoffensive and few—not so the tribe under whose rule they live exclusively.

As to the "small vessel of war" being a protection to the guano fleet, I deem the proposition most farcical, seeing that for the greater part of the year she will in all probability find her own security engage her principal attention.

The subsequent condition of and indications on the beach denote the power of the S.W. monsoon on these islands; and my synoptical table will also show the influence of the gales during four other months of the year. I mention these circumstances in order that the care essential for the safety of shipping while in the bay of Kooria Mooria may not be neglected, or left for fatal experience to inculcate.

The subjoined is a synoptical table of the weather I experienced off the Kooria Mooria Islands in 1835 and 1836:—

Date, 1835–36.		*Winds.*
December	14th	Light E.N.E. to E.S.E.
,,	15th	Light S.E.
,,	16th	Light S.E. and South.
,,	17th to 18th	Hard gale from North to N.W.
,,	19th	Fresh gale from W.N.W.*
,,	20th	Fresh gale N.W. to North.
,,	21st to 22nd	Moderate a.m.; light p.m.
,,	23rd to 24th	Light E.N.E.
,,	26th to 27th	Light airs and calms.
,,	28th	North a.m.; S.E. p.m.
,,	29th to 30th	Light E.N.E. and N.E.
,,	31st	Calm.
January	1st to 5th	Hard gale from North to N.W.
,,	6th	Fresh a.m.; light airs p.m.
,,	7th to 11th	Land and sea breezes.
,,	12th to 17th	Moderate from N.E. to E.S.E.
,,	18th to 23rd	A furious gale from N. to W.N.W.
,,	24th	Moderate gale a.m.; light airs p.m.
,,	25th to 27th	Blowing a gale from North to W.N.W.
,,	28th	Moderate N.E.
,,	29th	Moderate N.E. to North.
,,	30th	Light N.N.E.
,,	31st	Moderate N.E.
February	1st	Moderate East.
,,	2nd	Light E.N.E.
,,	3rd to 5th	Fresh gale North to N.W.
,,	6th	Moderate E.N.E.
,,	7th	Moderate N.E. to E.S.E.

* *Reliance*, whaler, wrecked during the night; crew saved, and received on board.

Date, 1836.		*Winds.*
Febrnary	8th to 9th	Fresh gale North to N.W.
,,	10th	Moderate N.N.E. to E.N.E.
,,	11th	Fresh S.S.E.b.S.
,,	12th to 14th	Fresh gale from South to S.W.b.S.
,,	15th	Calm, light airs, clear sky.
,,	16th to 18th	Hard gale North to N.W.
,,	19th to 20th	Fresh, S.W. to S.S.E.
,,	21st	Moderate gale S.S.W.
,,	22nd to 23rd	Moderate gale at North.
,,	24th	Strong gale S.S.W., squalls and rain.
,,	25th to 26th	Hard gale S.S.W., vessel parted two bowers.
,,	27th	Moderate gale S.S.W.
,,	28th	Moderating S.b.E. to S.S.W.
,,	29th	Moderate.
March	1st	Moderate South to S.S.E.b.E.
,,	2nd	Moderate E.S.E. to S.S.E.
,,	3rd	Fresh gale, South.
,,	4th	Light airs from N.N.E. to East.

These northerly gales do not extend far southward, but appear to be confined to the limits above-mentioned. They are called the "Arab's Belat," and when blowing furiously raise up dense heavy black clouds of dust and sand. Clear of Kooria Mooria Bay, and past Ras Roos, or Nus, they blow along the line of coast (influenced by the high range of the Subhan mountains) in the direction of Morbat, at which anchorage the water is smooth, owing to the wind blowing off shore; but again through the deep and extensive valley of Dhofar, it blows off shore with great violence.

The southerly breezes appear also confined to that part of the Arabian coast, being seldom felt to the southward, the S.W. monsoon not reaching Sokotrah before the 1st or 10th May.

With respect to the supply of guano to be found in the Kooria Mooria group, and which from the terms specified in the agreement is evidently expected to be abundant, I look for further disappointment to the sanguine projectors of the scheme. The surfaces of several of these islands are certainly in most parts covered with guano, particularly the western and eastern islands, a cursory description of which my journal also contains:—

Jezerat Jiblia [Kibliyah] the eastern island, and third largest of the group, is nearly two miles long, one and a half broad, and five in circumference, forming from every point of view peaks composed of primitive limestone, more or less allied to granate; rocky on all sides, with the exception of a sandy nook east of the N.W. point, in which we were fortunately able to secure our boats. The highest peak is 550 feet above the level of the sea, in lat. 17° 29′ 16″ N., and long. 56° 24′ 22″ E., that is, allowing Bombay to be in long. 72° 54′ 26″ E. Jiblia is a mere barren rock, visited by birds of the gannet species; its only other occupants consisting of everything obnoxious to man, all thriving wonderfully, such as snakes, rats, mice, scorpions, centipedes without number, and vermin of every description.

We discovered many graves and several human skeletons, one leaning on his elbow, and supporting his fleshless head in his bony hand; another in an erect position, supporting himself, or rather itself, against a rock; others lying here or there, more or less placed in positions, as if the unhappy men had perished from starvation, which was afterwards somewhat confirmed by the inhabitants of the Hullaniyah, who informed us that a ship and a bugalo had both been wrecked there, and in consequence of not being able to render them any assistance, owing to the want of boats, the crews perished miserably of hunger and thirst.

Hasick,* the western island of the Kooria Mooria group, is one mile and two-fifths in length, by three-quarters broad, composed of granite, without a single vestige of vegetation, or anything to indicate its having ever been the resort of man. In 1836 I saw this island covered with myriads of birds of the same gannet species, the excrement giving to the island itself quite a white appearance. It is also rocky in every direction, with two nooks on its eastern side.

My description is not an alluring one, and if guano of *good* quality were actually obtainable, it perhaps would matter little; but I am by no means sanguine as to the positive value of the deposits to be met with in these islands, neither do I believe the supply will be found abundant or deep, but the exact depth I did not ascertain; I simply judged from the fact that in searching for geological specimens the guano appeared to lie very thinly on the surface.

In fact, the guano of the Kooria Mooria Islands I suspect is precisely similar to that discovered at Tahlfaroon [salt rocks]. The bird is of the same species—a kind of gannet—and I dare say it is generally known that on conveying a load of the Tahlfaroon guano to the Isle of France, it was considered so inferior that it realised nothing like the price expected. It had been collected at great cost and pains, and consequently proved a great disappointment to the shippers. I even think that a greater proportion of sand and dust will be found mixed among the guano of Kooria Mooria than with that of Tahlfaroon, owing to the violence of the Belat winds.

The doubt I would suggest, therefore, arises from the very feasible queries of—

Firstly—By what right has the Imaum of Muscat assumed the power of bestowing upon others that which was not his to offer, and what appears never to have belonged to any of his family?

Secondly—Has the *legal* right of farming out the Islands of Kooria Mooria been obtained, and the title-deeds proved correct and just?

Thirdly—Have the difficulties and risks to be guarded against in procuring the guano been taken into account?

Fourthly—Has the question been gravely calculated by experienced guano shippers as to the quality and quantity of guano required to cover the expenses of shipping, outfit, risk, &c., and whether it is probable the attempt will be satisfactory upon so large a scale of lia-

* Hasick, rapidly pronounced Hasiki, signifies belonging to Haski.

bilities, judging and arguing upon more recent advice than I would most humbly but very earnestly afford?

Fifthly—Has the possible and probable delay in obtaining a single load been considered? In the case of the Talulfaroon attempt, impediments of this kind proved extremely embarrassing.

And sixthly—The expense of a vessel of war in such a difficult position will be considerable.

The orders of H.M. government, that the vessel of war appointed to the Kooria Mooria station should reach the islands in August, I consider particularly injudicious, as I believe that any vessel entering the bay during that month will be glad to get out again at the shortest possible notice. Indeed, it is my confirmed opinion from familiar experience, that the Kooria Mooria station will be far from an enviable one.

I fear I have already occupied too great a space in your valuable columns, otherwise I would gladly contribute still further information, trusting it might act as a caution to my friends and countrymen of the mercantile marine, urging them to consider well before undertaking the projected enterprise, lest disappointment and serious loss would verify the discouraging obstacles I have set forth, especially in the matter of loading and reloading vessels.

Almost every earthly difficulty may of course, through patience and perseverance, be surmounted; yet still I think the drawbacks presenting themselves to my mind in connection with the Kooria Mooria group of islands are likely to prove insurmountable as far as pecuniary benefit is concerned or profit to be derived; and in any case the experiment will, I am afraid, result in dissatisfaction.

I am, &c.,

Bombay, May 3rd, 1857. S. B. HAINES.

LOSS OF LORD YARBOROUGH'S YACHT THE "ZOE."

The following has appeared in the papers on this subject. But our readers will notice the prevalent practice of firing rockets.

As the Earl of Yarborough, the Hon. W. Monson, and Dr. Duigan, R.N., were cruising in the North Sea in his lordship's yacht *Zoe*, on the night of the 24th of May, owing to the wind falling light, the vessel drifted by the tide on to the Haisborough sand-bank, about fourteen miles off the coast of Norfolk. The yacht, impelled by the force of the tide, struck the bank with great violence several times, and after some little time, rolling over, became washed by the sea; sufficient time, however, elapsed to enable the noble owner and his friends, together with the crew, to betake themselves hurriedly to the boats, and thereby to save all hands. Fortunately for the boats the water was smooth and the weather fine, which enabled them, after

about three hours' hard pulling against a strong tide, to reach the Coast-guard station of Haisborough or Happisborough. The yacht, which was most magnificently fitted up, has become a total wreck, and nothing whatever of the valuables on board has been saved. It is very gratifying that no lives have been lost.

17, *Arlington Street, London, May 26th.*

Sir,—You will oblige me by allowing me to occupy a small space of your columns to enable me to do an act of justice to a very deserving man, the sailing-master of my yacht *Zoe*, which was wrecked at midnight on Haisborough Sands, off the coast of Norfolk, on the night of the 24th instant.

I am satisfied, and have so expressed my opinion to the sailing-master in question, that no want of precaution on his part, or any of the crew, was the cause of the accident, nor was it in their power to prevent it. A fair wind was taking the vessel at the rate of eight knots an hour on her course. We had just made Cromer Light at 10.30, when the wind suddenly fell, and the vessel was in a calm drifted by a very strong tide on to the sands which, renders that coast so dangerous. Immediately before she struck, the lead, which was constantly hove, gave sixteen fathoms.

I am desirous that my friends should be made aware of these circumstances, and I would beg leave to call to the minds of all your readers how powerfully this accident is calculated to make them reflect that while, on the one hand, it may please God to frustrate our plans and our wishes, and to make us remember our entire dependence on Him, He at the same times gives us reason to be grateful and sensible of His great mercies. In this instance He has spared the lives of twenty human beings exposed to the greatest danger, and, in all human probability, beyond the means of rescue.

I am, &c.,

YARBOROUGH.

To the Editor of the Hampshire Advertiser.

P.S.—Allow me to ask the attention of owners of steam-vessels to their duty, as I conceive it to be, to order the discontinuance, by the masters of their vessels, of a practice which I understand prevails—namely, when the master of a vessel passes at night at sea a vessel he supposes to belong to the same owner, rockets are discharged from each vessel.

On landing from the wreck of my yacht, I observed to the coast-guard officer I first saw,—"We fired rockets, but no notice appeared to be taken from the shore." His reply was,—"Rockets are never noticed, as the steam-vessels so often fire them,"—in the manner as I have above described.

New Books.

Account of the U.S. Naval Astronomical Expedition *to the Southern Hemisphere, during the years* 1849–50–51–52; *compiled by Lieut. Gillis, U.S.N., Superintendent of the Expedition.* Washington, 1856, 2 vols. 4to.

The main object of the Expedition, of which the foregoing is the account, was set forth in our volume for 1849. The narrative of its proceedings in the establishment of the Observatory at St. Jago, the capital of Chili, and the final disposal of it with its instruments to the Chilian Government, with a mass of collateral interesting and instructive information, such as is afforded by a new country, form the subject matter of the above volumes.

Those who know the climate of the capital of Chili will readily admit its favourable nature for astronomical observation. Of this ample proof was found by Lieut. Gilliss, who tells us that—"Out of 132 consecutive nights after the equatorial was mounted, there were only seven cloudy ones! Of necessity to afford so large a proportion, the air must be exceedingly destitute of moisture, a condition of things favourable to telescopic vision, but not so to eyes employed during prolonged observation."

The seeds of the expedition seem to have suffered in some measure from a deficiency in the personal staff—yet wh le the meridian circle was in preparation, Lieut. Gillis states that "nearly 1400 observations of the planet [Mars] were accumulated;" and with the circle,—"Beginning within 5° of the South pole, a systematic sweep of the heavens was then commenced in zones or belts 24′ wide. Working steadily towards the zenith on successive nights, until compelled to return below again to connect in right ascension, the place of every celestial body that passed the field of the telescope to stars of the tenth magnitude was carefully noted down. The space immediately surrounding the South pole was swept in one belt of 5°, by moving the circle, and each zone overlaps those adjoining both in right ascension and declination. Above the polar belt there are 48 others, making in all 24° 12′ of declination, within which we obtained 33,600 observations of some 23,000 stars, more than 20,000 of them never previously tabulated." This is an important addition to our astronomical resources, but forms the least interesting portion of the book for our readers—for whom we shall be able to find some interesting extracts, which we shall press into our next number.

The Austrian Scientific Voyage.—The Austrian frigate *Novara*, 30 guns, left Trieste on the 30th of April for Gibraltar, on a scientific voyage round the world. The astronomical, meteorological, and magnetical observations will be made by officers of the Navy, under the command of Commodore Wullerstorff. Dr. Hochstetter, from the Geological Institution of the Austrian Empire, will be occupied with geological and physical, Messrs. Frauenfele and Zelebor with zoological, Drs. Schwarz and Tellinek with botanical, and Dr. Scherzu with astrological and national-economical researches and investigations. The last of these gentlemen will also keep the journal of the expedition, and make the reports on its progress and results to the different political and scietific authorities at home. The expedition is likewise accompanied by a renowned Austrian painter, M. Selliny, who will be occupied in illustrating the most interesting points visited by the *Novara*, and likewise make drawings for different scientific purposes. The *Novara* is accompanied by the corvette *Carolina*, and will be towed as far as Messina by the steamer *Lucia*, Capt. Littrow, an Austrian man-of-war.

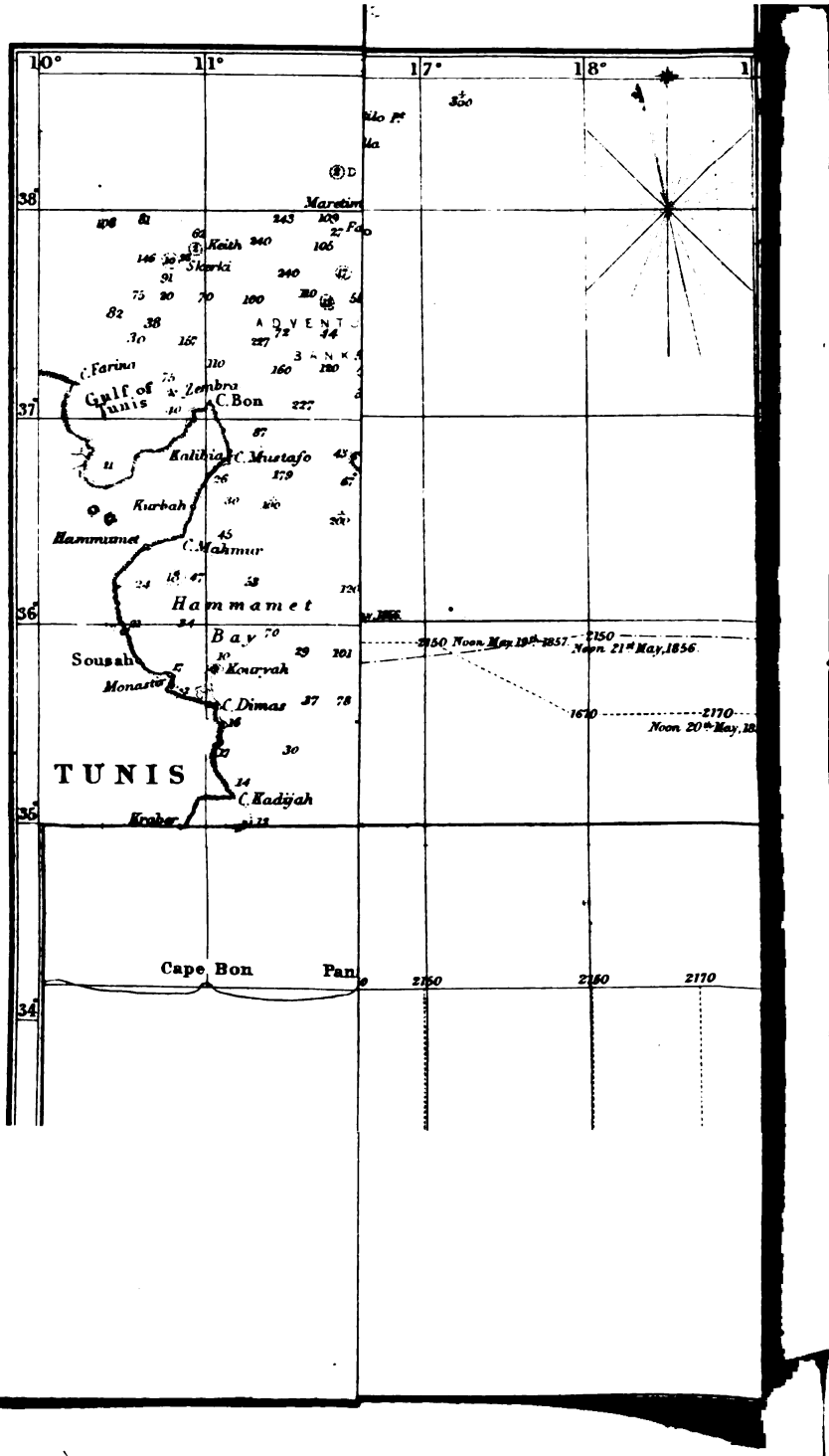
CRUELTY TO SEAMEN.—*Bristol, June 23rd.*—By direction of the Board of Trade, the Local Marine Board of Bristol have been engaged in the investigation of a charge of cruelty preferred against Charles Walters, Master of the brig *Steadfast*, of that port. The board consisted of Messrs. Joseph Coates, (chairman,) W. Brass, George Whitwell, W. T. P. King, E. T. Lucas, W. Patterson, R. Rowe, and W. Cooke, assisted by Mr. Henry Bretson as legal assessor, and sat on Wednesday, Thursday, and Monday last. Mr. Pigeon, solicitor, appeared on behalf of William Parsons, an apprentice, by whom the charge was preferred; and Mr. Stone, instructed by Mr. Ayre, Jun., for Walters.

After a good deal of evidence had been adduced, the following resolution was adopted, which will be forwarded to the Board of Trade for their decision as to what further steps shall be taken in the matter:—

"That this Board finds that Charles Walters, Master of the brig *Steadfast*, of this port, on her last voyage from this port to the West Coast of Africa, which commenced on the 2nd day of June, 1856, was, while on the said voyage, frequently guilty of great severity, and, particularly on one occasion, of an act of tyranny in the infliction of whipping with a heavy horsewhip one William Parsons, an apprentice on board that ship; and also that the said Charles Walters was on the 10th day of June inst. convicted by two of the magistrates of this city of the offence of assaulting the said William Parsons, on the 6th day of September last, on board the said ship on the high seas, and by them adjudicated to forfeit and pay the sum of £5, and to pay the said William Parsons 19s. 6d. for costs, and in default of payment to be imprisoned for two calendar months. And it appearing by the evidence produced before this Board on the said investigation that not only the Master but also the First and Second Mates were accustomed frequently to beat the two apprentices on board the said ship, both with their hands and with ropes' ends, this Board would strongly condemn such a practice."

CHINA.—Extract from a private letter:—The *Raleigh* arrived within twenty miles of Hong Kong on the 14th of April, after passing between the islands called Tangho and Paklink, near the Ladrones. She struck on a sunken rock going at the time eight knots per hour; the vessel proceeded, but it was soon found she was making much water, and the chain pumps would not keep her afloat very long, so the Commodore immediately decided on bearing up for the nearest place to run her on shore to save the lives of the crew, &c. Macao Roads was the nearest and best place, distant from the rock she struck thirteen miles; they bore up and run her on shore at the Typa, an island close to Macao, all soft mud. A French steamer and 50-gun frigate, the *Virginie*, was lying in the Macao Roads at the time—the former started for Hong Kong with the unfortunate news to the Admiral; he immediately sent a steamer up the river, ordering the *Inflexible* and *Nankin* down the river to her assistance, also sending *Bittern*, brig, and *Alligator* (the latter is a hulk). They have taken out her guns and anchors, and are working hard to lighten her. She is now several feet in the mud, and the high water flows up to the main deck ports, so it is uncertain whether she will ever be raised again. Many are sanguine about her getting afloat again, but it will be a work of time and immense labour; still we feel certain if she is to be raised Kepple is the man to do it. Such is the state of affairs at present.

Encounter and *Elk*, with the *Starling* gunboat, about a mile below Macao Port; *Acorn* and *Hornet* below the Barrier; *Niger* above, and *Sybille* below, second Barrier; *Comus* at the Boca Tigris, *Calcutta* at Hong Kong. The war is at a stand-still, waiting for orders from England and troops from India, I suppose. *Cruizer, Highflyer, Fury*, and five gunboats not arrived—a long time coming.



THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

AUGUST, 1857.

REPORT OF DEEP SOUNDINGS BETWEEN MALTA AND THE ARCHIPELAGO, IN 1856 AND 1857,—*With Remarks on the best means of obtaining Deep Soundings.*—*By Capt. T. Spratt, R.N., C.B.*

Having in May, 1856, obtained three or four deep soundings with silk line between Malta and the Archipelago, by which the greatest depth seemed to be about 2,200 fathoms, I provided myself with a quantity of seine twine, every 100 fathoms of which weighed 6lbs., but only 1lb. when in water, with the view to carry out a continuous line of soundings over the same ground; and to trace the bottom the whole way along this central and widest basin of the Mediterranean.

I started from Malta in H.M.S. *Medina* on May 18th, and in tracing the bottom from Malta, found a plateau or bank from 50 to 70 fathoms only below the surface, extending to about thirty-five miles East of Valetta; and when due South (true) of the East coast of Sicily, it commenced to dip; so that at forty-five miles from Valetta we found about 300 fathoms.

But from this distance the surface of the plateau makes an abrupt descent, so as to present a submarine scarp of fully 6,000 feet, for at the distance of only ten miles further, and fifty-five from Valetta, we found the bottom to be 1,530 fathoms (9,180 feet) deep; being nearly as abrupt and high as the East face of Etna.

From thence the bottom is more level, the next thirty miles showing a gradual descent of 600 fathoms; where the maximum depth was attained, viz., 2,150 fathoms, which being 12,900 feet, shows

that the summit of the bank is 2,000 feet higher above its base than Etna is above the sea.

This great depth at the position of about ninety miles East of Malta, has a special interest for seamen from the long entertained opinion that a rock only two or three feet under water existed here. Even up to a very recent period has it been searched for; and it is only twelve months since that one of the best of our Greek pilots died, who used to assert that *he had stood upon this rock in early life* in the course of a voyage from the Levant to Malta in a merchant vessel. Nothing could shake his evidence and assertions to me regarding it, even up to the last year of his life.

But those assertions have also been supported by the declarations and indirect evidence of others, which, particularly in one instance, was proved to have been obtained from false logs and statements.

Frequent search in consequence of these assertions has been made for it by orders from the Admiralty and Commanders-in-Chief; of course without success, as the soundings now actually obtained on and about the spot show that its existence is impossible.

For if Etna were thrown there it could not reach the surface; and even abrupt as it is, and volcanic also, it has a broad base of nearly forty miles in extent; for although one side is only ten miles from the summit to the sea, the opposite is nearly thirty miles distant from it. The base of every mountain is in proportion to its height. No rock can rise like a column from a depth of 2,150 fathoms; consequently, as the bottom is found to be level for thirty miles in opposite directions from the place of the supposed rock, there can be no submarine mountain there.

Two soundings of 1,870 and 1,950 fathoms were obtained in the same position last year by me with a silk line; and now they are verified by three more of 1,950, 2,050, and 2,150 fathoms, with a line of seine twine about the same size, although only half as strong, in very favourable weather, between daylight and dark of May 18th of the present year.

As my soundings in H.M.S. *Medina* while crossing this broadest part of the Mediterranean, each contributed experience as to the best means of obtaining deep soundings, and as they are few in number, and have suggested the easiest and surest means of gaining them even in greater depths and in a breeze with some swell, I will allude to them in succession, with all the data and notes connected with the operation *(See Table of Sounding)*.

In obtaining deep water soundings many practical difficulties present themselves.

First, in not having the proper weight, and a line best suited to attain a rate of descent that shall be sufficiently rapid to indicate when the weight is at the bottom by the interval of time in running out; and next from not knowing the strain which the line is able to bear at the required depth when thus running out, the *strain increasing in proporsion to the increasing resistance* offered to its passing through the water by friction as the *depth increases*.

This has no doubt been the cause of many a failure, or the registry of erroneous soundings, from the impression when the line parted and the rate of running out became changed in consequence, that the lead had struck the bottom, particularly when heavy lines were used.

To explain this, it will be evident that when a weight is first let go, although attached to a line, the line offers no resistance if the reel on which it is coiled works freely; but as the line runs out, the heavy body at the bottom has to *drag* it down in consequence of the increasing friction of the water on the line in passing through it.

Thus, if the weight is just under what the line will bear when gently suspended, when let go and descending at the rate of four or five miles an hour in the water, its weight or strain on the line is immediately increased; and when the line begins to feel this *effect of friction*, which thus becomes an antagonistic resistance, or rather upward strain, it will almost immediately break.

It is therefore evident that for *every depth* the weight thould be in proportion to the strength of the line. But as the depth is an unknown quantity, (in fact, what we want to learn,) to ascertain the weight becomes a matter of accident or experiment.

I will more fully explain this by the soundings and experience of the third day, although a fact long before understood by many.

In connection with the object of obtaining soundings at these great depths, there have been generally two others combined, viz.,—To detach the weight sent down, and—To bring up some indication of the bottom, as a proof that it has been reached; affording thus interesting information regarding the minute shells or vestiges of animal life existing or not at that depth, a subject of the highest interest to the naturalist.

Although these results give certain evidence of the bottom having been reached, they involve the necessity of hauling in again all the line let down, which I have found to be always a difficult task, uncertain in its results, and producing serious inconvenience from delay and loss of valuable time in doing it during weather not too favourable for attaining such depths. It takes fully twice the time to haul in a line that it took to run out, unless the weight *always* becomes detached, in which I find a great uncertainty. It is due from me here to state that Brookes' American rod has alone succeeded with me in depths above 1,000 fathoms; but then only once, viz., in the great depth of 1,800 fathoms.

On the next trial in 1,700 fathoms, the same rod failed entirely, and I lost it in consequence, as I also did several others of the same form, as well as some dozen of Bonnici's, in which at first I had the greatest confidence.

On Wednesday May 20th, at 4.30 a.m., when about 164 miles East of Malta, I left the *Medina* in a cutter, provided with 8,000 fathoms of seine twine, that was capable of bearing from 22lbs. to 32lbs., average about 25lbs. To this was attached Brookes' American sounding rod, with a flat piece of lead and hollow shot, together of 9lbs., as a weight, with a hole bored through for the rod, as used

by the Americans with a shot only. The rod and weight together was 13¼lbs. out of the water.

At 4.50 a.m. the weight was let go, and the boat kept from drifting before the light breeze and swell then prevailing by an occasional slight pulling of two oars, so as to keep the line up and down. At 5h. 56m. 0s. there was an evident diminution of the speed of running out, and bottom was supposed to have been reached. As I was anxious to obtain a certainty of the bottom by some mud brought up, and having the successful Brookes rod down, I resolved to haul the line in by hand, so as to prevent risk of breaking it with reel.

I was accompanied in the boat by my able assistant Lieut. Wilkinson, and each taking a turn at the first 100 fathoms to show the boat's crew the way, they finally succeeded in hauling in 1,900 fathoms, when our hopes were disappointed by the broken end of the line coming in, the rod and 250 fathoms of it being lost.

Thus it was uncertain whether the weight had been at the bottom, or the line had parted in descending,—since its weight or tension on hauling up had not been great from the first,—so that from this I supposed the rod had detached the weight and was coming up alone.

To verify this point I resolved to try again, with a shot of the same weight, and with Bonnici's claw attached.

The shot was let go at 8h. 36m. a.m., and at 10h. 3m. in 2,150 fathoms it appeared to be down.

At this trial 2,170 fathoms of the line ran out before there were indications that it was at the bottom. The average interval of time between the last 50 fathoms was 3m. 4s., whilst the interval between the following 50 fathoms was 8m. 32s. and 8m. 56s. Thus it was evident the former sounding of 1,950 was not true. It still appeared that the last might also be a false sounding, through the breaking of the line. To prove this, about 100 fathoms of the line were hauled in, when the strain became so great as to show that it was taut up from the weight, and by increasing the strain the line gave way.

Thus it was supposed the bottom was felt, as there was no evidence of current, the line being easily kept up and down by the aid of a couple of oars now and then.

However, I felt it necessary still to verify this sounding by another with twine again, but with a lighter weight, so to vary the conditions I attached an 8lb. shell to a new reel of twine, that worked very easily from being of a large diameter. This likewise showed a depth of 2,180 fathoms, being only about 10 fathoms more than the former, and was thus considered as a perfect verification. It took 1h. 37m. in descending, and occupied eight minutes more time than the former sounding with a 13lb. weight. On this occasion I had abandoned all detaching instruments, in order to avoid any error or doubt when it was down; as it occurred to me that this could be best tested by weighing the line when slacked, and also when hauled taut, with the shot lifted, or at the greatest strain that it would bear in endeavouring to do so.

More than 100 fathoms of slack line being now paid out, I weighed

the line, and found that the greatest strain on it was only from 1½lbs. to 2½lbs. by a spring steelyard, and this could be maintained so for any length of time, showing there was no appreciable upper or under current. I then hauled in the 100 fathoms paid out, and the tension increased to 4lbs. and 5lbs., showing that the strain was increased by being nearly taut; and on getting in a little more the strain increased so much that the line broke by a pitch of the boat before it could be attached to the steelyard.

Thus the proof of the shot being on the bottom was satisfactory. For had it not been so it would never have increased the tension of the line in hauling up to more than 4lbs. or 5lbs., as we had experienced when hauling in the line the first time, and as I afterwards shall show by another, even if the whole 2,000 fathoms were thus hauled in by hand.

On May 21st we sounded twice with twine; the first time in 1,720 fathoms, the second in 1,620 fathoms, using on the first of these occasions Brookes' American rod, which for this once most happily detached itself. But by its doing so we were of course doubtful of the truthfulness of our sounding, from the weight or tension of our line decreasing instead of increasing, as follows. With 1,900 fathoms out it was from 1lb. to 2lbs. when slack; but when hauling in and taut up and down with the whole line consequently coming up with its whole resistance from friction, was 4lbs., and with 1,500 fathoms out 3lbs.; 1,000 fathoms out 2lbs., and 500 fathoms out 1lb. So that had the line parted near the bottom there would have been the same results.

But after carefully hauling all up by hand, it was very satisfactory to find that the American rod was brought up and bore evidence of having been on the bottom, as the lower part of it was covered for three inches with a slight coat of tenaceous yellow clay.

The rod, which was of iron, having been in part greased, was in those places protected from the action of the acids of the salt water. But where not greased they had turned it a rusty red, and the clay in contact with it a deep ochre.

Two important points had thus been determined by this plan of weighing the line, viz., that by it, with a sinker, without any detaching instrument, the bottom could be certainly felt when down, and thus clearly distinguished from a false indication through a parting of the line, or a real one through the detaching the lead, by the instrument; as it is evident that in either case the whole tension could never exceed 5lbs. The second point was the ascertaining that the weight of the line only, when shot was at the bottom, was sufficient with a free reel to keep it continually running out; being no doubt aided by the pitching of the boat and swell together, since it was very evident there was no current, superficial or under, so as to tighten the line unless the boat was allowed to drift before the swell or light breeze.

For as the rate at which the line ran out the last 100 fathoms ex-

actly equalled a rate of 1,000 fathoms per hour, or one knot, a sensible superficial or under current must have been observed.

Having now come to the conclusion that to ascertain deep sea soundings with certainty, it is best to be done *independently* of all detaching instruments, with the view of bringing up bottom; and best to be done also with the lightest line possible, viz., a twine or silk line, so as to be carried away when at the bottom:—But that the bringing up the bottom should be treated as a perfectly independent although simultaneous operation, at an occasional sounding instead of at every deep one:—

I therefore prepared all my deep sea lines and spun yarn to the amount of more than 2,500 fathoms, and had a simple instrument for bringing up bottom, made out of two pieces of leaden tube, each three feet in length, and lashed together as a sinker.

The two pipes or tubes weighed 18lbs., and were provided with a valve on the upper apertures of each, so as to open when descending that the water might pass through, and to close when being hauled up; so that it was hoped that the pipe would retain the clay of the bottom as far as immersed into it, and also water from the bottom in the upper part of it.

This plan was consequently tried at noon of the 20th, and again at the sounding on the 21st. In the last it was successful; but in the former trial it failed through the line breaking, from the tubes having been weighted with two 32lb. shot to take them down more quickly.

In the latter trial, however, the tubes were sent down in 1,620 fathoms, and returned with yellow clay sufficient to fill a coffee-cup. But of course it did not indicate, by any sensible diminution of rate, when the bottom was attained, in consequence of the line, after 300 fathoms had run out, being itself heavier than the weight. So that when the 1,700 fathoms were out, of course the line continued to descend at a uniform rate from its own gravity only, from being thus so much (viz., seven times) heavier than the sinker. The effect of the latter was consequently absorbed or lost in any effort to detect it by time, or weight by hand.

This leads me to remark on the errors and difficulties connected with obtaining deep sea soundings by a heavy line, such as has been often employed, viz., iron wire, deep sea lines, or spunyarn also, from their increased resistance from friction as well as weight. Because it must be evident that when the line out exceeds the weight used as a sinker, the time of reaching the bottom is not easily detected by the intervals. For the line will descend almost uniformly both *before and afterwards* by its own weight alone, and without any necessity for conceiving it to be the result of a "swigging power from under currents," as maintained by Lieut. Maury to be the chief reason why a line continues running out after the weight has reached the bottom.

And I must here observe, that when the line was known by us to be at the bottom, in about 2,000 fathoms; from there being no current the tension of 1½lbs. and 2lbs. which the line then bore on the

reel by its gravity was sufficient to make it turn, assisted as it always must be in a boat by her motion from swell, &c.

To explain more clearly this difficulty and error connected with stout heavy lines, I have had the following quantities of deep sea lines and spunyarn weighed in and out of water, as they are what have been commonly used previously to the American plan of twine or silk line, which is found so successful now.

	Fathoms.	Weight dry.	Weight in water.
Deep sea lines	100	22·5	8
9 yarn spunyarn ...	100	32	5
6 „ ...	100	17	3·5
3 „ ...	100	8	2

Thus a deep sea line of 100 fathoms weighs 8lbs. in water.
„ „ 1000 „ 80 „
„ „ 2000 „ 160 „

Consequently in a depth of 2,000 fathoms it would require a sinker of nearly 200lbs. to exceed the weight of line out; but beyond that depth, say 4,000 and 6,000, as depths that have been in some cases given by such means, the weight required to exceed the line out would have to be nearly 600lbs., or the quarter of a ton. But to be felt or to sensibly indicate the time of its touching bottom by an evident change of interval, at least double those weights would be required, viz., nearly half a ton in 600 fathoms. But should a superficial current exist also; as nearly double the line might have to be paid out before the bottom was reached by reason of the boat's drift away from the vertical position of the lead, much more weight would be required to know when the line was down, and such as no one has ever yet attempted to attach to a deep sea line or spunyarn, to overcome their gravity at that depth. And then no spunyarn generally used for such purposes would bear the required weight for those depths, and would consequently break long before, as I have shown.

This then is another of the difficulties and causes of doubt existing with all very deep soundings obtained by such means. For unless the line is about the same specific gravity as sea water, the errors and difficulties increase in increasing rates with every increase of depth. This is mainly considering the question in depths where there is no sensible current.

But with currents which are appreciable, superficial currents, as we know do exist sometimes, the difficulty is then augmented, and with all due deference to the talented author of the "Physical Geography of the Sea," and all due respect and admiration of his most valuable researches, and elevated and *amiable* reasonings on these interesting inquiries, I humbly think that the elements to be considered in connection with the running out of a line, after the lead is down, in a deep sea, are the gravitation of the line itself as one cause, (and as I have experienced and shown to exist with common twine,) as well as superficial currents (not under currents) as another. For I do not believe any such universal under currents exist so as to be the cause of a line running out after it has reached the bottom. But I

fully admit a superficial current as a very frequent or general fact, especially in the great oceans; and the experiments adduced by Lieut. Maury seem to me to be only evidences of an upper current, not an under one (see pages 141 and 142). I allude to the sinking of a piece of wood in the Atlantic to several hundred fathoms and buoying it with another piece of wood that would bear it.

The old naval plan of lowering a large iron pot from a boat, when the ship is becalmed, was a more primitive mode of ascertaining the same thing, viz., the superficial current.

I cannot comprehend that it will show any other, or rather how an under current exclusively is to be thus recognized from such an experiment.

That an appreciable under current may exist in some localities, is probable; such as where two strong streams of great difference in temperature meet, like the Gulf Stream and the Arctic Stream off Newfoundland. But that it is a universal system, such as to affect the operation of a deep sea sounding by dragging out the line, or to be a great source of circulation of the ocean, and cause of the great superficial currents that exist, I do not believe, and thus agree with the opinions of Sir Charles Lyell and Admiral Smyth.

And I have given examples of soundings obtained at considerable depths, where no appreciable current was felt, viz., those showing the depth of the sea bed between Malta and Crete or Candia. They were not vitiated by any current; so that we have in those depths, as given by our soundings on that track, a sea bed as deep as the sea bottom between America and Ireland.

But as my object is to give my experience in obtaining these deep soundings for the benefit of others following the same interesting research, I am induced to show what seems to me the only way of obtaining the actual depth in localities where there are superficial currents, as in the Atlantic Ocean; for those deep sea soundings shown by Mr. Maury in the course of the Gulf Stream to be 5,000 fathoms and more, are probably vitiated by that current, and thus indicate greater depths than the truth.

For in obtaining deep soundings where there is a current, three operations are required, each independent of the other, as follows:—

First,—*The operation of ascertaining the depth:* by a very fine but strong line, with a conical weight of adapted size.

Secondly,—*The proof that the bottom was reached; and some of it obtained for objects of science;* viz., by a cylinder or pipe as above described, with a line sufficiently long and strong to bring it up again after it had been down, which can be lowered from the vessel kept stern to the wind; and to effect which, where there are currents, of course twice the quantity of line should be paid out; or a weight attached at every 200 or 300 fathoms to assist its descent.

And, Thirdly,—*The ascertaining the strength of the superficial current:* by a weight sunk in 300 or 400 fathoms or more, and buoyed at the surface, as described by Lieuts. Walsh and Lee of the United States Navy.

For as the line descends so slowly in the greater depth, by reason of its friction through the water, so as at 2,000 fathoms to be little more than one knot per hour, even with a fine twine or silk line; and the superficial current is often in excess of that in the Atlantic and Gulf Stream, the quantity taken out by the current alone will, when the lead has reached the greater depths, then be in excess of the actual vertical descent, and thus give an appearance of there being twice the depth that there really is.

But when the current is ascertained, (which no doubt it should be at *every cast*, and as I think only superficial currents exist to cause an excess of paying out of line, and not in general "swigging under currents," as they have a uniform effect on the line after the weight has descended below them,) the excess paid out for current can be deducted, and will equal the length of drift, corresponding to the rate at which it is ascertained, and the time occupied in obtaining the soundings.

As a summary of my experience and views I repeat that to obtain correct soundings at great depths, three operations are necessary where there are superficial currents, viz.,

First,—To ascertain their strength.

Second,—To obtain bottom by independent apparatus and lines of sufficient strength, by which much more of the bottom can be obtained.

Thirdly,—To obtain bottom with a fine but strong twine, with a conical weight attached, so as to offer the least resistance in its descent, and the fact of being down ascertained by weighing the line after it appears to be so, by a sensitive steelyard to show ½lbs.

For the resistance and weight to haul a twine line in by hand, 2,000 fathoms long, is, as I have shown, equal to about 4lbs., when detached from the sinker, so that after showing so little as 4lbs., if on being hauled taut, or brought so by the current, it should exceed 12lbs. or 14lbs. before breaking, (according to the weight of the sinker,) the weight must have been resting on the bottom.

In regard to corrections for superficial currents it must be evident that if the boat was ascertained to be drifting at the rate of one knot from over the vertical position of the lead after it has descended some 200 or 300 fathoms or less, according as ascertained, that for every six minutes the line was running out 100 fathoms would have to be deducted, or 1,000 fathoms for every hour. Or if the sounding was taken in the Gulf Stream, where it runs more than two knots, more than 200 fathoms would have to be deducted for every six minutes the line was running out: and as in a depth of 2,000 fathoms it takes fully an hour to reach the bottom, nearly double the quantity would have been paid out, viz. 4,000 fathoms: so that this may account for the great depths, viz., 5,000 and 6,000 fathoms and *no bottom*, which we see in the course of the Gulf Stream on Lieut. Maury's chart. For it seems more probable that a greater uniformity of the bottom exists than the soundings show. And in advancing this view I am induced to draw attention to the fact that where there is still water,

viz., in the "Sargasso weed field," we have the least depth shown, an *apparent bank*. But may not this be because the soundings were not so vitiated there by superficial currents?

The subject is as full of geological and geographical interests as it is of zoological and nautical; and being also a new investigation, in which light has only just dawned on us through the scientific labours and zeal of our brothers of the American navy; and being also complicated with some difficulties still, all this must form my excuse for attempting to explain some of them in this long essay.

T. SPRATT, Captain, R.N.

Constantinople, June 3rd, 1857

To Capt. Washington, R.N. Hydrographer, &c.

DEEP SEA SOUNDINGS TAKEN BETWEEN MALTA AND THE ARCHIPELAGO, IN H.M.S. "MEDINA."

Monday, May 18th, 1857, 8h. a.m.—Calm and smooth. A hollow 8lb. shot, attached to seine twine, capable of bearing (extreme weight) 25lbs. to 35lbs., by Bonnici's sounding claw, was put over the ship's stern and let go

Depth, fms.	h	m	s	Int. m	s
	at 8	27	0		
50	8	27	27	0	27
100	8	28	9	0	42
150	8	29	2	0	53
200	8	30	3	1	1
250	8	31	12	1	9
300	8	32	26	1	14
350	8	33	48	1	22
400	8	35	15	1	27
450	8	36	48	1	33
500	8	38	25	1	37
550	8	40	8	1	43
600	8	42	0	1	52
650	8	43	50	1	50
700	8	44	47	1	57
750	8	47	50	2	3
800	8	49	50	2	0
850	8	51	50	2	0
900	8	53	52	2	2
950	8	55	55	2	3
A 50 fathoms mark missed here.					
1050	9	0	0	4	5
1100	9	2	10	2	10
Held on line to see if twine was running out by drift of vessel or weight of shot, and backed astern. Let go again					
	at 9	3	5	2	5
1150	9	5	10	2	19
1200	9	7	29	2	31
1250	9	10	0	2	40
1300	9	12	40	2	40
1350	9	15	10	2	30
Held on line till ship's stern was over it, and when tort, with much strain, let go					
	at 9	17	30		
1400	9	20	40	3	10
Held on line till ship's stern was over it again, and when tort let go					
	at 9	21	15		
1450	9	24	33	3	18
1500	9	28	50	4	27
1530	Down				

A very evident diminution of speed in running out succeeded the last interval, and showed by eye and time by watch also, that the shot was down in about 1,530 fathoms. Then 50 fathoms were paid out to try and detach the shot from claw; but without effect for it was very sensible when the strain was on the line on being hauled tort again to exact depth, but when 20 or 30 fathoms were paid out no strain or weight was felt. This was, therefore, a very satisfactory

sounding as far as the ascertaining of the actual depth. But as the shot could not be detached, the line broke near the surface in attempting to haul it up, losing 1500 fathoms of seine twine.

Place of above sounding, lat. 36° 3′ N., long. 15° 40′ E.

18*th*.—Sounded with seine twine from the ship's stern, with shot and piece of lead attached, together weighing 12lbs. Let go

Depth, fms.	h	m	s	Int.	m	s
at	1	56	0	p.m.		
50	1	56	23		0	23
100	1	57	11		0	48
150	1	58	10		0	59
200	1	59	19		1	29
250	2	0	30		1	11
300	2	1	42		1	12
350	2	2	55		1	13
400	2	4	5		1	10
turning 450	2	5	18		1	13
astern. 500	2	6	40		1	22
550	2	8	22		1	42
600	2	10	3		1	41
turning 650	2	11	41		1	38
astern. 700	2	13	20		1	39
750	2	15	10		1	50
800	2	16	55		1	45
850	2	18	36		1	41
turning 900	2	20	19		1	43
astern. 950	2	22	7		1	48
1000	2	24	4		1	57
1050	2	25	55		1	51
1100	2	27	39		1	44
trning 1150	2	29	36		1	57
astern. 1200	2	31	32		1	56
1250	2	33	31		1	59
1300	2	35	45		2	14
trning 1350	2	37	46		2	1
astern. 1400	2	39	43		1	57
1450	2	42	18		2	35
1500	2	44	40		2	22
1550	2	46	46		2	6
1600	2	48	40		1	54
1650	2	50	29		1	49
trning 1700	2	52	22		1	52
astern. 1750	2	55	7		2	46
1800	2	58	10		3	3
1850	3	0	28		2	18
trning 1900	3	2	32		2	4
astern. 1950	3	5	22		2	50
2000	3	8	34		3	12

The weight apparently down in 1,950 fathoms, by subsequent time of running out. Line broke in hauling up: lost 1,300 fathoms.

Place of above sounding, lat. 35° 57′ N., long. 16° 3½′ E.

18*th*.—In cutter away from ship. A hollow shot (small), wooden bottom up, with a piece of lead lashed on underneath, together weighing exactly 12lbs. Over the bows of boat, with two after oars out to keep the boat up to line; eased down about 30 fathoms; let go finally

Depth, fms.	h	m	s	Int.	m	s
at	6	20	20	p.m.		
50	6	20	30		0	10
100	6	21	18		0	48
150	6	22	21		1	3
200	6	23	24		1	3
250	6	24	33		1	9
300	6	25	50		1	17
350	6	27	14		1	24
400	6	28	44		1	30
450	6	30	16		1	32
500	6	31	48		1	32
550	6	33	25		1	37
600	6	35	5		1	40
650	6	36	48		1	43
700	6	38	30		1	42
750	6	40	24		1	54
800	6	42	15		1	51
850	6	44	24		2	9
900	6	46	36		2	12
950	6	48	35		1	59
1000	6	50	36		2	1
1050	6	52	39		2	3
1100	6	55	6		2	27
1150	6	57	13		2	7
1200	6	59	40		2	27
1250	7	1	53		2	13
1300	7	4	12		2	19
1350	7	6	48		2	36
1400	7	9	4		2	16
1450	7	11	17		2	13
1500	7	13	30		2	13
1550	7	16	11		2	41
1600	7	18	47		2	36
1650	7	21	18		2	31
1700	7	23	40		2	32
1750	7	26	6		2	26

This inequality of time arose from keeping up to the line irregularly.

Depth, fms.	h	m	s	Int.	m	s
1800	7	28	53		2	47
1850	7	31	26		2	33
1900	7	34	10		2	44
1950	7	37	19		3	9
2000	7	40	16		2	55
2050	7	43	26		3	10
2100	7	46	29		3	3
2150dwn	7	50	22		3	53
2200	7	56	5		5	43 com.
2250	8	4	10		8	5 slow.

The shot seems to have struck bottom when 2,150 fathoms were out. This was confirmed in hauling up the line again, as on getting about 100 fathoms in, the strain became so great as to eventually carry away the line, and, no detaching instrument having been used, we lost nearly the whole of the line.

Place of above sounding, lat. 35° 58′ N., long. 16° 19′ E.

The three soundings of this day (18th May) were taken under very favourable circumstances in respect to weather and sea, being a perfect calm and smooth.

Tuesday, May 19th, 6h. 30m. a.m.—Lowered cutter to sound. Attached hollow shot with piece of lead lashed on the underneath part, altogether weighing 12lbs. A moderate easterly breeze, with head breaking swell. Allowed the line to run over a hook lashed to awning stanchion; eased down about 30 fathoms; carried away—the motion of boat being too great.

Attached another, with piece of lead similar to last. Let go

Depth, fms.	h	m	s	Int.	m	s
at	6	23	18			
50	6	24	0		0	42
A 50 fathoms mark missed here.						
150	6	25	50		1	50
200	6	26	58		1	8
250	6	28	11		1	13
300	6	29	22		1	11
350	6	30	40		1	18
400	6	31	59		1	19
450	6	33	21		1	22
500	6	34	46		1	25
550	6	36	20		1	34
600	6	37	55		1	35
650	6	39	31		1	36
700	6	41	18		1	47
750	6	44	21		3	3
This must have been the join of two ends with an excess of about 40 fathoms on one, as I expected it to occur by the joining on of a remnant.						
800	6	46	15		1	54
850	6	48	21		2	6
900	6	50	27		2	6
950	6	52	35		2	8
1000	6	54	42		2	7
1050	6	56	58		2	16
1100	6	59	25		2	27
less25 1150	7	0	42		1	17
1200	7	3	13		2	31
1250	7	5	44		2	31
1300	7	8	10		2	26
1350	7	10	48		2	38
1400	7	13	22		2	34
1450	7	16	15		2	53
1500	7	18	51		2	36
1550	7	21	16		2	25
1600	7	24	2		2	46
1650	7	27	2		3	0
1700	7	29	59		2	57
less15 1750	7	32	28		2	29
1800	7	35	33		3	5
1850	7	38	43		3	10
1900	7	41	46		3	3
1950	7	44	58		3	12
2000	7	48	11		3	13
2050	7	51	30		3	19
2100	7	54	52		3	22
2150	7	59	0		4	8 going
2200	8	9	5		10	5 slow

The weight must have been down at 2,140 fathoms, and this corrected for the above errors (2,140+40−40=2,140) leaves the actual depth obtained 2,140 fathoms. The last 50 fathoms were merely taken out by the twine's own weight, the shot evidently being down. Hauled in carefully 70 fathoms, when the strain was very great, and the line carried away near the water's edge.

During the whole of this sounding there was a light breeze from the Eastward, with a little breaking sea, which caused the boat to pitch continuously, and obliged it to be kept over the line with four oars pulling almost continuously. When the shot was at the bottom the line appeared to be up and down, and no current indicated by it. The necessity to pull in the cutter arose from the boat's drift before the light breeze, and the necessity of keeping her head up to the little chip of a sea existing. I hardly expected to have got bottom under such circumstances; but as the line used was capable of bearing from 25lbs. to 30lbs., and had been tested in Malta Dockyard lofts to bear 16lbs., the 12lb. weight attached was easily borne under the slow and unchecked descent of the line, when allowed thus to take it off a freely turning reel. Place of above sounding, lat. 35° 53′ N., long. 16° 59′ E.

19*th*.—Afternoon, at 6h. p.m., shoved off from ship in cutter with the American rod. Had slung to it a long conical lead, a disc of lead below that, and a piece of wood to which the machine was attached. Slings of upper arms were double twine and the first 50 fathoms were also double. Commenced to ease down at 5h. 50m., until all of double twine was out; finally let go

	h	m	s	Interval, m	s
at	5	51	27		
Beyond double 50 fathoms	5	52	12	0	45
	5	53	0		

Carried away from some inequality of line or some unknown reason.

19*th*, 6h. p.m.—A hollow shot with a piece of lead lashed on underneath, together weighing 13lbs., attached to seine twine by Bonnici's sounding claw. A small piece of lead, weighing about a pound, was made fast to line about one fathom above the claw, for the purpose of detaching the weight from claw. Let go

Depth, fms.	h	m	s	Int.	m	s
at	6	14	55			
50	6	15	31	0	36	
100	6	16	11	0	40	
150	6	16	56	0	45	
200	6	17	46	0	50	
250	6	18	41	0	55	
300	6	19	40	0	59	
350	6	20	41	1	1	
400	6	21	48	1	7	
450	6	22	56	1	8	
500	6	24	7	1	11	
550	6	25	20	1	13	
600	6	26	35	1	15	
650	6	27	57	1	22	
700	6	29	21	1	24	
750	6	30	49	1	28	
800	6	32	18	1	29	
850	6	33	49	1	31	
900	6	35	30	1	41	
950	6	37	13	1	43	

Depth, fms.	h	m	s	Int.	m	s
1000	6	39	3	1	50	
1050	6	40	51	1	48	
1100	6	42	39	1	48	
1150	6	44	33	1	54	
1200	6	46	25	1	52	
1250	6	48	26	2	1	
1300	6	50	26	2	0	
1350	6	52	23	1	57	
1400	6	54	28	2	5	
1450	6	56	33	2	5	
1500	6	58	41	2	8	
1550	7	0	49	2	8	
1600	7	3	1	2	12	
1650	7	5	19	2	18	
Stopped at	7	6	0			
Running out very slowly indeed, allowed it to take itself from weight of line up to						
1700	7	18	20	8	1	

Apparently on bottom. Paid out some slack line (to detach weight)

up to next mark, 1,750 fathoms. Then cut at mark, made fast to other reel, and reeled in slowly; in doing which the line broke near reel.

Have my doubts whether this is a correct sounding or not, since the line may have parted whilst descending (as in the next sounding), and thus gave a false indication of being on bottom. Thought of a way to prove this by weighing the resistance offered when the line was being hauled up and slack, and also when at its tautest strain, up and down with lead attached, and fixed in bottom, or weighed off it.

Wednesday, May 20th, 5h. a.m.—In cutter with Bonnici's American rod, having a hollow shot (small), wooden bottom up, weighing 9lbs., and round flat pieces of lead, 3lbs., wooden disc below all, to which weights were attached: weighing altogether 13¼lbs. Eased machine over, with double twine attached for the first 50 fathoms; then allowed it to descend, checking it for the first 200 fathoms to prevent its going too fast.

Depth. fms.	h	m	s	Int.	m	s	
50	4	50	58	a.m.			
100	4	51	44		0	46	desc.
150	4	52	49		1	5	chkd
200	4	53	45		0	56	
250	4	54	44		0	59	
300	4	55	45		1	1	
350	4	56	52		1	7	
400	4	57	59		1	7	
450	4	59	13		1	14	
500	5	0	23		1	10	
550	5	1	45		1	22	
600	5	3	6		1	21	
650	5	4	31		1	25	
700	5	6	1		1	30	
750	5	7	27		1	26	
800	5	9	3		1	36	
850	5	10	41		1	38	
900	5	12	24		1	43	
950	5	14	7		1	43	
1000	5	15	48		1	41	
1050	5	17	32		1	44	

Depth, fms.	h	m	s	Int.	m	s	
1100	5	19	18		1	46	
1150	5	21	9		1	51	
1200	5	23	10		2	1	
1250	5	25	10		2	2	
1300	5	27	15		2	3	
1350	5	29	22		2	7	
1400	5	31	23		2	1	
1450	5	33	41		2	18	
1500	5	36	4		2	23	
1550	5	38	24		2	20	
1600	5	40	44		2	20	
1650	5	43	2		2	18	
1700	5	45	31		2	29	
1750	5	48	4		2	33	
1800	5	50	36		2	32	
1850	5	53	4		2	28	
1900	5	55	33		2	29	
	5	56	52	com. run slowly			
1950	6	2	45		7	12	
Paid out 50 fathoms by hand.							
2000	6	8	45		6	0	

During this there were very light easterly airs, slight swell, but no apparent current, and the boat was kept perpendicularly over line by four oars constantly moving, which gave difference of times in going out. Hauled in hand over hand slowly, supposing instrument had detached from shot, and at 8h. 10m. 1,750 fathoms were recovered, but not the American rod, the line having parted about 250 fathoms from shot. This could not have been done in hauling up, but either when down from not having been detached, or from the line having *parted when it appeared to strike bottom.* To verify which, sounded again with a hollow shot and piece of lead attached underneath, together weighing 12½lbs., attached to seine twine by Bonnici's sounding claw. Eased down 50 fathoms; let go

Depth, fms.	h	m	s	Int.	m	s
50	at 8	36	35	a.m.		
100	8	37	18		0	43
150	8	38	7		0	49
200	8	38	57		0	50
250	8	39	54		0	57
300	8	40	55		1	1
350	8	42	0		1	5
400	8	43	14		1	14
450	8	44	31		1	17
500	8	45	54		1	23
550	8	47	21		1	27
600	8	48	52		1	31
650	8	50	26		1	34
700	8	52	5		1	39
750	8	53	47		1	42
800	8	55	35		1	48
850	8	57	26		1	51
900	8	59	21		1	55
950	9	1	20		1	59
1000	9	3	22		2	2
1050	9	5	27		2	5
1100	9	7	35		2	8
1150	9	9	44		2	9
1200	9	11	56		2	12
1250	9	14	16		2	20
1300	9	16	37		2	21
1350	9	19	1		2	24
1400	9	21	29		2	28
1450	9	24	4		2	35
1500	9	26	42		2	38
1550	9	29	19		2	37
1600	9	32	0		2	41
1650	9	34	43		2	43
1700	9	37	25		2	42
1750	9	40	12		2	47
1800	9	43	2		2	50
1850	9	45	57		2	55
1900	9	48	54		2	57
1950	9	51	51		2	57
2000	9	54	52		3	1
2050	9	57	57		3	5
2100	10	1	5		3	8
2150	10	3	39		2	34

This short interval arose from paying out the line by hand faster than when taking it off the reel by its own weight so as to attach another reel to its end.

2170	10	5	50	com. go slowly.		
2200	10	7	14		3	35
2250	10	15	50		8	36
2300	10	24	42		8	52

Weight appeared to be down between 2,150 and 2,200 fathoms. Allowed the line to take itself up to 2,300 fathoms; then hauled in the slack, fancying line had carried away. When 150 fathoms were got in the strain became very great, evidently showing that the line was not broken, and the weight still attached to claw; when hauling in a little more the line broke nearly at 2,150 fathoms mark, which proves that bottom was struck at 2,170 fathoms, and line was not strong enough to lift the weight off the bottom.

Sounded again in the same place with a hollow shot weighing 9lbs.,—no claw used,—with a larger reel, which works much easier than the former one. During the sounding a light breeze sprang up from the eastward with a short chopping sea. Kept the boat perpendicularly over line; apparently no current. Eased down 50 fathoms; let go

Depth, fms.	h	m	s	Int.	m	s
50	at 10	50	4	a.m.		
100	10	50	53		0	49
150	10	51	50		0	57
200	10	52	57		1	7
250	10	54	11		1	14
300	10	55	30		1	19
350	10	56	59		1	29
400	10	58	30		1	31
450	11	0	6		1	36
500	11	1	49		1	43
550	11	3	32		1	43
600	11	5	20		1	48
650	11	7	10		1	50
700	11	9	5		1	55
750	11	11	2		1	57
800	11	13	1		1	59
850	11	15	4		2	3
900	11	17	10		2	6
950	11	19	20		2	10
1000	11	21	37		2	17
1050	11	23	54		2	17
1100	11	26	11		2	17
1150	11	28	32		2	21
1200	11	30	51		2	19
1250	11	33	21		2	30
1300	11	35	49		2	28
1350	11	38	17		2	28
1400	11	40	49		2	32

Depth, fms.	h	m	s	Int. m	s
1450	11	43	21	2	32
1500	11	46	1	2	40
1550	11	48	41	2	40
1600	11	51	13	2	32
1650	11	54	7	2	54
1700	11	57	1	2	54
1750	11	59	56	2	55
1800	12	2	56	3	0
1850	12	5	35	2	39
1900	12	8	34	2	59
1950	12	11	36	3	2
2000	12	14	43	3	7
2050	12	17	53	3	10
2100	12	21	7	3	14
2150	12	24	32	3	25
2170	12	27	0	com. going slow	
2200	12	29	32	5	0
2250	12	35	5	5	33
Held on line to see if weight was down.					
let go at	12	36	28		
2300	12	43	17	6	49

The weight appeared to be down the same as former one, between 2,150 and 2,200 fathoms. Allowed the line to take itself up to 2,300 fathoms. Hauled in about 20 fathoms and weighed the pressure on line; found it 4lbs.; 50 fathoms in, 5lbs.; 100 fathoms in, 5lbs. also. Line broke, with slight strain from pitch of boat, between 2,200 and 2,150 fathoms.

N.B.—The line after being down took less time to take out 50 fathoms than on former occasions, owing to the boat pitching a little more from swell, and also from the reel being of a larger diameter than the former, and, in consequence, more easily kept turning.

There was no apparent current, the line being up and down and taut at 2,170 fathoms.

Interval of last 1,000, 53m. 6s.; interval of the 2,000, 1h. 25m. 0s.

Place of above soundings, lat. 35° 33′ N., long. 18° 48′ E.

20*th*.—In cutter with sounding rod similar to American one, received from Captain Mansell, with bored hollow shot, weighing 5¾lbs., and piece of lead, weighing 3¾lbs. The latter was placed in this instance above the shot, so as not to cause the line to run too fast, and the larger diameter of shot to force the shot and lead up the rod on touching the bottom, to cause the slings to detach from arms. Eased down 50 fathoms. Let go

Depth, fms.	h	m	s	Int. m	s
50	at 7	9	16 p.m.		
100	7	10	10	0	54
150	7	11	11	1	1
200	7	12	11	1	0
250	7	13	18	1	7
300	7	14	28	1	10
350	7	15	42	1	14
400	7	17	1	1	19
450	7	18	30	1	29
500	7	20	0	1	30
550	7	21	32	1	32
600	7	23	10	1	38
650	7	24	43	1	33
700	7	26	23	1	40
750	7	28	7	1	44
800	7	29	54	1	47
850	7	31	43	1	49
900	7	33	34	1	51
950	7	35	36	2	2
1000	7	37	43	2	7
1050	7	39	49	2	6
1100	7	42	0	2	11
1150	7	44	16	2	16
1200	7	46	33	2	17
1250	7	48	55	2	22
1300	7	51	8	2	13
1350	7	53	23	2	15
1400	7	55	40	2	17
1450	7	58	1	2	21
1500	8	0	32	2	31
1550	8	3	0	2	28
1600	8	5	24	2	24
1650	8	7	59	2	39
1700	8	10	37	2	38
1750	8	13	9	2	32
1800	8	15	51	2	42
Stopped at	8	17	23	pulled up to line,	
went on again	8	21	15	5	24
1900	8	27	57	6	42

Line apparently down, but thought to be broken. Then weighed

line with steelyards. Weight when strain on was from 2lbs. to 3lbs. After 50 fathoms were in the weight of line was 3lbs.; 75 fathoms, 5lbs. and on 160 fathoms being hauled in taut up and down, weighed 8lbs.; about 120 fathoms in, 10lbs., the line being up and down without the slightest current. On hauling in a little more the strain was upwards of 12lbs.—at this the line carried away. Water perfectly smooth, and a steady strain brought on line. True depth 1,780 fathoms.

21*st.*, a.m.—In cutter with rod similar to American; load with conical lead flat end down, having another circular piece of greater diameter than lead, (about diameter of 9lb. shot,) and piece of hide, in all weighing 10lbs. Eased down 50 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s
50 at	5	9	37			
100	5	11	21		1	44
150	5	12	59		1	38
200	5	14	20		1	21
250	5	15	36		1	16
300	5	17	2		1	26
350	5	18	26		1	24
400	5	19	53		1	27
450	5	21	35		1	42
500	5	23	25		1	50
550	5	25	18		1	53
600	5	27	12		1	54
650	5	29	10		1	58
700	5	30	52		1	42
750	5	32	50		1	58
800	5	34	47		1	57
850	5	36	59		2	12
900	5	39	9		2	10
950	5	41	21		2	12
1000	5	43	34		2	13
1050	5	45	50		2	16
1100	5	48	13		2	23
1150	5	50	33		2	20
1200	5	52	57		2	24
1250	5	55	22		2	25
1300	5	57	49		2	27
1350	6	0	26		2	37
1400	6	3	5		2	39
1450	6	5	49		2	44
1500	6	8	29		2	40
1550	6	11	18		2	49
1600	6	13	58		2	40
1650	6	16	48		2	50
1700	6	19	46		2	58
1750	6	26	8		6	22
1800	6	34	22		8	14

Evidently down at 1,720 fathoms, but allowed line to take itself out to 1,800 fathoms. Slack line weighed 1½lbs. to 2½lbs.; hauled in 25 fathoms, weight 3½lbs.; 50 fathoms, 3½lbs., from pitch of boat 3lbs. to 4lbs.; 100 fathoms in, up and down, 4lbs.; 150 fathoms in, 4lbs.; 500 fathoms, 3lbs.; 1,000 fathoms, 2lbs.; 1,100 fathoms, 1lb. Hauling up hand over hand increases the strain to 4lbs. Hauled machine up in 2h. 30m.; found it had been to bottom; when the bar came up, where it had not been greased tinged with iron rust; lower part had been in clay; on one side clay remained in its natural colour of light yellow, other side was tinged with ochre. The last 1,000 fathoms took 50m. to descend.

21st, Noon.—Sounding with spunyarn and deep sea lines with 18lbs. of leaden pipe attached to act as a dredge, being in two pieces, each 3ft. long, and lashed together. Eased down to 350 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s
350 at	11	9	50			
400	11	10	55		1	5
450	11	12	10		1	15
500	11	13	22		1	12
550	11	14	35		1	13
600	11	15	55		1	20
650	11	17	19		1	24
700	11	18	46		1	27
750	11	20	13		1	27
800	11	22	58		2	45
A piece of 30 fms. over the 50 fms.						
850	11	24	26		1	28
900	11	26	3		1	37
950	11	27	36		1	33

Depth, fms.	h	m	s	Int.	m	s	
1000	11	29	6		1	30	
End of spunyarn and commencement of deep sea lines.							
1030	11	29	58		0	52	
1130	11	33	31		3	33	
1230	11	37	9		3	38	a bend
1260	11	38	11		1	2	
1360	11	41	23		3	12	
1460	11	44	34		3	11	a bend
1560	11	47	52		3	18	
1660	11	51	22		3	30	
1690	11	52	39		1	17	a bend
1790	11	56	48		4	9	
1890	12	0	55		4	7	
1920	12	2	7		1	12	a bend
1950	12	3	9		1	2	
2050	12	8	0		4	51	
2150	12	12	25		4	25	a bend

The spunyard carried away about 60 fathoms from pipes.

21*st*, 6.30 p.m.—A common empty shell, weighing 8½lbs., attached to twine by Bonnici's sounding claw. Eased down 50 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s	
50	at 6	40	5				
100	6	41	2		0	57	
150	6	42	6		1	4	
200	6	43	16		1	10	
250	6	44	33		1	17	
300	6	45	57		1	24	
350	6	47	25		1	28	
400	6	48	59		1	34	
450	6	50	37		1	38	
500	6	52	24		1	47	
550	6	54	13		1	49	
600	6	56	7		1	54	
650	6	58	3		1	56	
700	7	0	7		2	4	
750	7	2	14		2	7	
800	7	4	24		2	10	
850	7	6	39		2	15	
900	7	8	59		2	20	
950	7	11	17		2	18	
1000	7	13	41		2	24	
1050	7	16	6		2	25	
1100	7	18	31		2	25	
1150	7	21	0		2	29	
1200	7	23	34		2	34	
1250	7	26	11		2	37	
1300	7	28	51		2	40	
1350	7	31	39		2	48	
1400	7	34	26		2	47	
1450	7	37	17		2	51	
1500	7	40	11		2	54	
1550	7	43	14		3	3	
1600	7	46	20		3	6	
	7	47	40	down.			
1650	7	52	25		6	5	
1700	8	0	5		7	40	

Evidently down at 1,620 fathoms; but allowed line to run out by its own weight to 1,700 fathoms. Weight of slack line 1lb.; 25 fathoms, 3lb.; 50 fathoms, 4½lbs.; after hauling in 100 fathoms the strain increased to 8lbs., showing that the shell was still attached to claw. Let go again to try and detach it; then hauled up till the strain attained 8lbs.; and let go a third time, but with a similar result. Then hauled up hand over hand very gently to see if it was possible to weigh it, when the strain became so great as to carry away the line close to the water's edge. After this sounding was ascertained the double pipes (similar to former ones) were put over, attached to deep sea line, and veered to 2,200 fathoms. They returned to surface with a coffee-cup-ful of yellow clay, and thus perfectly succeeded.

22*nd*, 4h. a.m.—Sounding with common empty shell, weighing 8lbs., attached to seine twine. Eased down 50 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s
50	at 4	15	53			
100	4	16	37		0	44
150	4	17	40		1	3
200	4	18	53		1	13
250	4	20	13		1	20
300	4	24	42		1	29
350	4	23	18		1	36
400	4	25	0		1	42
450	4	26	45		1	45
500	4	28	34		1	49
550	4	30	29		1	55
600	4	32	25		1	56

Depth, fms.	h	m	s	Int.	m	s
650	4	34	40		2	15
700	4	36	58		2	18
750	4	39	9		2	11
800	4	41	30		2	21
850	4	43	44		2	14
900	4	46	10		2	26
950	4	48	45		2	35
1000	4	51	18		2	33
1050	4	53	45		2	37
1100	4	56	33		2	48
1150	4	59	25		2	52
1200	5	2	19		2	54
1250	5	5	33		3	14
1300	5	8	38		3	5
1350	5	11	24		2	46
1400	5	14	35		3	11
1450	5	17	53		3	18
1500	5	21	16		3	23
1550	5	24	39		3	23
1600	5	27	58		3	19
1650	5	31	10		3	12
1700	5	34	34		3	24
1750	5	37	58		3	24
1800	5	41	24		3	26
1850	5	44	57		3	33
1900	5	48	23		3	26
1950	5	51	55		3	32
1970	5	54	24		down.	
2000	5	56	25		4	30
2050	6	3	25		7	0

Down at 1,970 fathoms. Allowed line to run out by its own weight up to 2,050. Weight of slack line 1½lbs. to 3lbs.; 25 fathoms, 4lbs. to 5lbs.; 50 fathoms, 5lbs.; 75 fathoms, 6lbs. to 8lbs. The greatest strain felt was at 1,970 fathoms, being 9½lbs. to 12lbs. Carried away close to surface. Last 1,000 fathoms took 1h. 2m. 13s. to descend; the whole 1,970, 1h. 36m.

24*th*.—With 8½lb. shell common empty, attached to seine twine. Eased down 50 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s
50	at 4	13	43			
100	4	14	10		0	27
150	4	14	34		0	24
200	4	15	16		0	42
250	4	16	23		1	7
300	A 50 fms. mark missed here.					
350	4	18	40		2	17
400	4	20	5		1	25
450	4	21	34		1	29
500	4	23	7		1	33
550	4	24	48		1	41
600	4	26	38		1	50
650	4	28	28		1	50
700	4	30	27		1	59
750	4	32	34		2	7
800	4	34	44		2	10
850	4	36	46		2	2
900	4	39	2		2	16
950	4	41	9		2	7
1000	4	43	42		2	33
1050	4	46	17		2	35
1100	4	48	51		2	34
1150	4	51	17		2	26
1200	4	53	41		2	24
1250	4	56	22		2	41
1300	4	58	42		2	20
1350	5	1	46		3	4
1400	5	4	26		2	40
1450	5	7	16		2	50
1500	5	10	10		2	54
1550	5	12	49		2	39
1600	5	16	45		3	56 down.
1650	5	20	48		4	3
1700	5	25	30		4	42
1750	5	30	15		4	45
1800	5	34	50		4	35

It appears the weight was down at 1,590 fathoms. Weight of slack line, 2lbs. to 6lbs. Carried away on hauling in, (close to boat,) caused by the quick pitching of the boat. During this sounding there was a fresh breeze blowing from the eastward, with a short chopping sea. Latterly the boat could not be kept over the line with six oars pulling continuously.

24*th*.—In cutter with twine and 8lb. shell common empty attached. Eased down 100 fathoms. Let go

Depth, fms.	h	m	s	Int.	m	s
100	at 11	18	24			
200	11	20	49		2	25
300	11	23	31		2	42
400	11	26	38		3	7
500	11	30	7		3	29
600	11	33	53		3	46

Depth, fms.	h	m	s	Int.	m	s	Depth, fms.	h	m	s	Int.	m	s
800	11	42	13		8	20	1100	11	55	25		4	57
900	11	45	58		3	45	1150	11	59	0		down.	
1000	11	50	28		4	30	1200	12	4	57		9	32

Evidently down at 1,150 fathoms. Weight of slack line, 1lb.; 10 fathoms, 3lbs.; 25 fathoms, 4½lbs.; 40 fathoms, 6½lbs.; 50 fathoms, 8lbs. Carried away here close to surface, losing 1,150 fathoms of twine.

At the same place and same time that the above sounding was taken, sounded from ship's stern, with deep sea lines, and leaden pipes only, attached, weighing together 18lbs., and fitted with valves at top to facilitate their bringing up clay from the bottom.

24th, 4h. p.m.—Sounded with pipes attached to deep sea line:—Cape Spada, S. 84° E.; left extreme Cerigotto, N. 10° W.; Pondiko, S. 33° E.; 247 fathoms, yellow clay.

Privateering in the West Indies,—*During the War.*

During the late war, from the facility with which private vessels of war might be fitted out in the ports of the different islands belonging to France and Spain in the West Indies, the Caribbean Sea teemed with small privateers, which, notwithstanding the utmost vigilance of the officers commanding British men-of-war, committed great depredation on our trade.

The speculation, like that of the slave trade pursuing by the Brazilians and Spaniards—the contraband traffic of the Americans of the United States during the late French war—or the smuggler's enterprises—was a lottery;—many lost, but the pertinacity with which the pursuit was continued, seems to warrant the inference that the majority gained. The ownership, in most cases, of a privateer, was a joint concern, so that where unsuccessful, the loss fell less weightily upon the individual purse; and one rich capture set all up above the effect of mishaps. When Fortune frowned on a single adventurer, and beggared him in pocket, Hope patted him on the shoulder, and encouraged him to proceed—but, the means?—doubloons though sometimes fished up from the deep where they had laid around the beds of the Mermaids, who made a drawing-room of some unlucky galleon that the *blow* of a hurricane had brushed off the ocean's surface,—were not to be picked up every day upon the sands. Cast down, not subdued, he gets up, shakes himself, and forthwith "ships" afore the mast,—peradventure the blind goddess may not scent him out amid the crowd,—a prize gives him a lift—another and another,—rises him higher still—he clubs, and has a fourth, or an eighth—as the case may be—in a cruizer—San Jago is invoked—she sails, brings in a fat West Indiaman—!—his fortune is made. The very same vicissitudes happen in all

countries among the money hunters, without privateering. Our merchants and shipowners, although they know that such a system of privateering existed in the West, from feeling its effects, yet they were perhaps ignorant of the pertinacity with which it was carried on by the numerous daring commanders of the enemy's private armed vessels; and, I dare say, have often thought and complained of a want of activity in our cruizers, at the very time that the greatest exertions were used for the capturing and destroying those *picaroons:* these recollections may serve to explain the matter briefly; and to show that our naval commanders had to deal with a most subtile enemy, who often bade defiance to all their skill and perseverance.

It is the peculiar privilege, we all know, of an Englishman to growl and grumble when he thinks his trading interests neglected by the executive or the servants it employs. Now, I do not pretend to say they among the lieges who are of the maritime order of traffickers, have never any just reason to cry out and complain in such matters—indeed, I am sure they have had sufficient cause—the unprotected state of the sea on the Jamaica station during the last short American war to *wit.* But I must tell these gentlemen, in all sincerity and candour, that, whilst their ships were captured, if they thought their interests unlooked after by the men-of-war, they were greatly mistaken. I have no interest whatever to say aught but the truth—and if I had I would disdain to deceive—I am for plain-sailing—I never practise "Tom Coxe's traverse" in any of my dottings.

The Spaniards who engaged in this pursuit were never equal to the Frenchmen who embraced the same line of employment; they were deficient in that activity and skill possessed by the latter. During the periods when at war with England formerly but seldom in the present time, they were more intent upon petty predatory exploits, such as landing upon the unprotected coasts of Jamaica and stealing Negroes, than running any hazards by attempts to capture vessels at sea. A resolute disposition on the part of our merchant ships to contest for victory, generally had the effect of driving them off: but it was very different with the Frenchmen; they were not to be frightened so easily by a display of courage on the part of our merchantmen.

These marauding nocturnal exploits of the Spaniards were much more frequent during the earlier occupation of Jamaica by the English than in the revolutionary war; they gradually lessened with the decline of the power of Spain as a maritime nation, and as the naval celebrity of Britain increased. But whilst they continued they were a never failing source of disquiet to the inhabitants of the North side of our island; and hundreds of Negroes were stolen and carried over to Cuba. When I was a prisoner of war at Trinidad de Cuba, I saw and conversed with several of the old black men and women who had been seized and dragged away from their homes and families by the piccaroons: these poor beings, in relating the circumstances of their capture to me, were greatly affected, and bewailed their hard lot in accents that were distressing to me. They did not complain of bad treatment, but they deplored the event that separated them from their

families and the hopelessness of the ardent desire they could not dismiss from their minds of ever again rejoining them. They implored me to use every exertion in my power to relieve them from the heart-withering situation in which misfortune had placed them. Alas! I could do nothing either to rescue them, or to console them with hope —their condition was past remedy! sympathy with the suffering of their hearts was all that I could bestow, but however that may have softened the intensity of their feelings, it could bring them no mitigation beyond a trifling and temporary relief from the agony that was wearing away their spirit and their life.

It is impossible for me to convey to the reader's mind, by mere words, the feelings of mingled commiseration and indignation which assailed me on these occasions: the poor beings I speak of thronged around me every time I ventured out of the prison gate: the women wept whilst the men, all wearing the livery of age and the hollowed expression of misery in their countenances, poured out their griefs: they seemed to consider my presence as a blessing, and even to touch me as a consolation, for the women smoothed down my cheeks with their hands, whilst the men took delight in rubbing their withered fingers on my coat, uttering at the same time those inward sounds of satisfaction which denote in them that the heart is full. I am not ashamed to say that on some of these occasions I could not restrain my feelings of humanity, but wept with them over their irredeemable sorrows. Even now, the bare recollection of these scenes of my youth, almost unmans me. The very thought of transactions of this nature is horrible, and the more humiliating when we consider the boasted superiority which the actors claim over the race they depress—the boast of civilization and of Christianity! yet do they not scruple to perform actions worthy only of demons.

I have also listened with much interest to the exciting tales of old dwellers in Jamaica of the depredations committed by the Spaniards on their properties lying near the sea shore. At one period they never retired to rest without sending out scouts or patrols; but even with these precautions they were frequently taken by surprise, and had hastily to arm their Negroes and fight desperately for their property.

Of the war of 1794, Pierre Olanger was considered one of the most clever and resolute commanders of the French privateers, but he appears to have been a great scoundrel. He ran his career principally among the Windward Islands.

In the last war, Jacque Mathieu—by the privateers'-men themselves called Jacca Matu, and by our sailors Jack Mathew—became notorious for his enterprise aud success on the Jamaica station. The energy, dexterity, and daring of this seaman was a theme of universal comment; and some of his enterprises were almost unparalleled in the annals of maritime warfare. These were to be sure on a petty scale, but the audacity with which they were performed was so extraordinary as to elicit surprise and wonder even among his enemies. He most certainly was a remarkable man; and, in his way, and according with

the means he had in command, every wit as notorious a character as the noted Jean Bart of European fame.

I shall here relate, briefly, one of the tricks he played off, which may give some idea of his expertness, skill, and intrepidity: the whole proceeding was one of the cleverest displays in the exciting game of detestable war. A sloop of war fell in with a small felucca commanded by Jaques, and by dint of carrying sail off the wind, brought her alongside. Mathieu lowered his sails, and the ship hove to; whilst a boat was preparing to take possession of the prize, the captain of the sloop of war went into his cabin to take some refreshment, but had scarcely seated himself when he was surprised at hearing the discharge of several cannon, the balls from which broke his cabin windows and swept the decanters and glasses from the table!

Hastening on deck, he had the mortification to see the daring Frenchman *luffing* his little vessel so close as nearly to touch the ship's quarter: all sail was soon set, and chase given to the privateer; but she having had time to gain the wind, from her superior sailing *close hauled*, and under cover of the night, after a long trial, effected her escape!

I have often heard the captain relate the circumstance, and he said that, although he never had more cause, in his encounters with privateers, to be surprised and chagrined, yet he could never revert to the subject without laughter, it was altogether so unexpected, and placed the ship of war in such a ridiculous light,——a lion stung by a mosquito; besides, at every turn he took on deck he met "long faces," which, but a few minutes before, were drawn out quite the other way by smiles at the golden prospect. The fellow certainly deserved to escape, the *ruse* of lowering his sails and appearing to give up all as lost, in order to put his enemy off his guard, was one of those clever tricks Jacques had often played off before on British men-of-war. Long before this, he had displayed, under very trying and hazardous situations, an extraordinary promptitude of action in taking advantage of the slightest circumstance that afforded a chance of escape; and with the exception of Captain Love, who was the king of the piccaroons, Mathieu was certainly the most enterprising, audacious, and successful among the French privateers' men.

The power transferred to these auxiliary and truly irregular sea-troops, during hostilities, is very much to be deprecated. The government of any civilized country which sanctions by its authority this mode of annoyance and injury towards an enemy, (happily now done away,) degrades itself; the scenes enacted by these licensed plunderers would disgrace savages:—to my knowledge some of them committed acts of piracy on neutral vessels, and with perfect impunity. If the skill of our seamen was often put to the test in broad daylight during the chasing of privateers; at night it was a most difficult matter to accomplish the capture of one of them—especially if she was a *ballahow*—which the sailors designated as a "low, sneaking looking thing." It was by no means easy

to retain sight of them, even with the aid of good night telescopes, they were such small objects on a wide horizon; especially as they were constantly trying some manœuvre to deceive or elude the vigilant eyes they well knew were aching in keeping them in view; and sometimes when they were even under your bows they would steal away, and puzzle you exceedingly to catch another glimpse of them; indeed I have known an instance where one of these vessels, after nearly carrying away a frigate's flying jib-boom at noon day, actually effected her escape! At times, when the moon shone brightly, they would "lead you a dance" almost round the compass, until they arrived at the sweep of the horizon which was most obscure, when they would lower down every sail, so that, in an instant, the person in the chaser employed with the night glass, would lose sight of the chase, and in nine cases out of ten not see her again. At other times they would allow the light in their binnacle to be seen by the man-of-war in chase, and then dropping a cask with a lantern suspended to a pole fixed in it, shade their own light, alter their course, and "laugh in their sleeve," in anticipation of the chagrin which the English captain would feel in taking possession of an old tar-barrel instead of the expected privateer!

Until you had actually removed the men from one of these French craft, you could not be sure she was your prize, although under your stern, crossing your bows, or indeed in any position; this has been proved in several instances besides that which I have just related. I recollect a schooner in the Mona Passage—between Hispaniola and Porto Rico, giving us, in a corvette, a chase of twelve hours, during which time, at night, we described a circle: that is to say, from before the wind to a close haul on the starboard tack—tacked—close hauled on the port or larboard tack—then gradually off until before the wind again! At daylight, the point of the schooner's gaff topsail was alone visible above the horizon. The object the commander of the schooner aimed at, and which ultimately was successfully gained, was, to try our rate of sailing on all points; and that which gave him the advantage of distancing us, he followed. It is well known to seamen that vessels do not sail equally on all points; some holding their superiority only off the wind; others alone by the wind; whilst some few sail swiftly both by and large.

Heavy squalls intervening during a chase, the privateers often bear away before the wind, and, if seen, of course draw the chaser on the same point of sailing. At such times, the atmosphere being loaded with aqueous vapour, the sight is obscured even to within a short distance, and objects are consequently hidden from view. Under such a cover, when the cunning privateer's man calculates that his enemy is drawing nigh, he *yaws* his vessel either to the right or left for some distance out of the direct line he was pursuing, and then lowers all his sails; the man-of-war under a press of sail, carrying through all obstacles to come up to the chase, unknowingly dashes past her! When the squall ceases, and the atmosphere becomes again clear, the captain of the English

ship is surprised to find that he is running a race with the wind; the vessel he *was* in chase of, on looking about him, he observes two or three miles "dead in the wind's eye of him!"

Perhaps there is nothing which provokes a testy skipper more than to be outwitted in this manner by a mere French piccaroon, or, to be teased for a whole day by four or five of these saucy fellows, without being able, with all his skill, powder, and ball, to catch one of them; and truly, I think,—albeit they who command others, should know how to command themselves,—there is great excuse for it: sailors are not philosophers—and *nemo mortalium, &c.* It has happened, however, that, from due want of care on the part of the privateer's-man—from the man-of-war having made a reciprocal movement—or from mere accident, the vessel of the former has been run down, and the crew lost; this was the fate of the celebrated Captain Love, and two or three others of less note.

Jacque Mathieu, in his little *ballahow*, the *Maringouin* or *Mosquito*, has often annoyed our ships of war, particularly the *Désirée*, frigate, for a whole day. Confident in the swift-sailing quality of his vessel, Jacque would heave her to the wind, and there lie in the most unconcerned manner, until the ship of war had worked up so far to windward as to be within gunshot, when the wily rover would fill his sails, shoot off like an arrow, and, by making one or two tacks, be sufficiently out of the reach of the guns of the English ship to heave to again; and so on alternately, until the cover of night, when he would slip away unperceived! It must be observed that all the labour and anxiety was on our side: such as setting and trimming sails, trimming the ship, working the guns, &c.; whereas the Frenchman, in his petite barque, had nothing more to do than to draw in or ease off his sheets, and to put his helm down. In the intermediate time, the crew were lying about in perfect repose, smoking cigars!

On the North side of St. Domingo, (now called Hayti,) to the eastward of Cape François, (Cape Haytian of the present day,) there is a singularly shaped hill, or rather peninsulated rock, stretching into the sea, and almost insulated. It has been named by the Spaniards Monte Christo, but is, with more propriety, by the French called La Grange. There is a small port here, which afforded shelter to the privateers when cruizing off the coast. Whenever chased, they made directly for it, and sought protection under the guns of the fort. Our boats, however, in 1803, more than once, in despite of this protection, cut out several vessels under a formidable fire.

In January, 1804, the *Désirée* frigate chased two privateers into this anchorage; and although every stitch of canvas that the ship could bear, was set, we had no chance of success with them, as, unfortunately, the frigate, which had been, at a former period, a swift sailer, no longer retained that first-rate quality; and we had often the mortification of being baffled in our pursuit of the enemy's light vessels in consequence.

Our frigates, on the station, were not generally so successful as the smaller classes of vessels of war, in capturing privateers. In fine

weather and light winds, it was difficult for a square-rigged vessel, even under a crowd of sail, to catch one of these little schooners with no more than four or five sails set. The majority of instances were unfortunate; in very heavy weather, indeed, and by the intervention of some fortuitous circumstances, some of these, it is true, were taken, even by two-decked ships, but it was by dint of overcarrying the fugitive.

I may observe here, that the little schooners built at the Bermudas, principally of the cypress-cedar wood—such as the *Pike, Bream, Cuttle, &c.*, carrying four guns, although well constructed, were not a match for the larger privateers, nor, indeed, for the smaller classes, when cruizing, as they often did, three, four, and five, in consort. Even H.M.S. *Supérieure*, mounting 12 or 14 guns, under the gallant Lieut. Fromo, got severely handled by two or three privateers off St. Domingo; and the *Gracieuse*, and another schooner of war, met with a spirited resistance from Jean Marie in the *Vengeance* or, as the Spaniards called her, *Juliana*. This craft was one of the largest and best equipped schooners belonging to the enemy, and, at the time of the "diversion" which I had with others "enjoyed" in a four and a half hours hard fighting with her, she carried a crew of ninety-five men!

Two days after our unsuccessful essay, (as stated of the *Désirée, ante,*) we spoke an American schooner, the master of which informed us that, six hours before our speaking him, he had seen a French privateer capture a British ship, and make sail with her to the westward. This intelligence instantly acted like a talisman; and, although we had found such authority not always to be depended on, yet, in a short time, our gallant ship was under a press of sail in pursuit, according to the received information. Among the naval evolutions, there are, perhaps, none which produce a more beautiful effect than those of making and shortening sail, when performed by a well disciplined crew. Our Yankee informant, who was leaning listlessly over the quarter bulwark of his little low vessel, close to us, seemed perfectly astounded at the rapidity of our movements; and I have no doubt he was as much delighted as astonished; as a seaman, though unpractised in the celerity of the art, he could fully appreciate its value, as well as admire its display. Indeed, the mere casual spectator who views the slow and, from want of hands, awkward manner in which a merchant vessel sets and reduces her sails, can form no conception of the rapidity and simultaneous movement with which those of a man-of-war can be loosened and set, or reduced and furled. Jonathan appeared quite delighted at the noble appearance of the frigate, with her studding-sails alow and aloft, and, as we dashed by him, greeted us with a wish of success.

During a delightful moonlight, and a fine steady breeze, the old ship pressed her way gallantly to the westward; many an anxious eye strained towards the horizon of that quarter; not a speck, however, met the view, until the open morn presented, directly in our line, a lofty sail!—"Huzza! here she is!—for once, Jonathan has told no

fib." In an hour's time we were alongside of her; she proved to be a letter of marque, and had not been molested by any of the enemy's cruizers; consequently she was not the ship alluded to by the American—who now, in our estimation, was considered as rather a doubtful subject with reference to his veracity—how soon hope, or disappointment, upsets our judgments!

After a few questions, we made sail again, and in the forenoon captured a French felucca, having on board 2,000 dollars; equal to about £500. This little privateer had but recently been fitted out; the crew were novices, and her capture was occasioned by their want of skill.

(To be continued.)

THE INDIAN OCEAN CONSIDERED WITH REFERENCE TO THE WANTS OF SEAMEN.

(Continued from p. 350.)

No. 5.—*First Outer Passage.*

With the same conditions a vessel may make a more direct passage to the Gulf of Bengal from March to October, and proceed as follows by the first of the outer routes.

From the Cape of Good Hope she would keep nearly on the parallel of 38° or 39° S., as far as the meridian of 62° E. From thence steering about N.N.E. she would cross the Southern limit of the Trade (the parallel of 28° or 29°) on the meridian of 82° or 83°. Then continuing Northward, she would take care in crossing the Trades to gain easting, gradually increasing her longitude in order to be prepared for their changes, (as in the months of March, April, and May the wind will be found frequently at East,) so as to compensate for the effects of Westerly currents found in those latitudes. Thus a vessel in 1° or 2° South latitude, between April and October, may be certain of reaching any of the ports in the Gulf of Bengal with the S.W. monsoon.

Vessels bound for Ceylon, Pondicherry, or Madras, should stand to the Northward across the Trade, and keep a little West of Point de Galle if desirous to make it. If bound to Trincomalee in this season, they should make the land a little South of their port. Those bound to Pondicherry or Madras should also, from March to September, make the land South of those ports, to provide for the effects of the Northerly current produced by the S.W. monsoon.

No. 6.—*Second Outer Passage.*

A vessel bound to the Gulf of Bengal, if we suppose that after leaving the Cape she would cross the line between October and April, and not arrive in the Gulf until after the N.E. monsoon has set in, or

when it is in its greatest force, should adopt the following route, called the second outer passage.

From the Cape she should run sufficiently to the Eastward to cross the Southern limit of the Trades on the meridian of 84° or 85° E., and would then steer to the Northward and gradually gain Easting sufficient to counteract the effects of the current, so as to enable her to lay up for Cape Achem, the Northern point of Sumatra.

She should not however go so far East as to sight the islands off the West coast of Sumatra or the cape itself, for in October and November light variable winds and squalls from N.W. or West prevail there, with a current setting into the Straits of Malacca. If she be bound to this strait, on the contrary, this route would be the best to follow.

When she has passed Cape Achem, at fifty or sixty leagues West of it, if the wind permits she would sight the Western part of the Nicobar Islands. When the wind appears likely to veer to the Eastward, she would keep as much to windward as possible; and if it veers to E.N.E. or N.E., she would pass West of those islands. On the parallel of 16° or 17° the wind frequently comes from North, and she would profit by it in making some boards to the East, in order to keep off the West coast of the gulf. But she should not approach too near the coast of Arracan; and it is generally in the Northern part of the Bay of Bengal that off these coasts it is necessary to work to windward, and thus reach the anchorages of Bengal and Calcutta.

A vessel bound to Pondicherry or Madras or any other port on the West coast of the gulf, need not approach Cape Achem as abovementioned, and should not go East of the meridian of 87° E. In fact, in October and the beginning of November a vessel off that cape is often delayed by N.W. or Westerly winds; while during the same months, in the middle of the gulf, the wind varies between South and West.

After the month of September a vessel should make the land a little North of her port of destination, to counteract the effect of the Southerly current. This however depends on the changes of the monsoons, which are very far from being regular, and sometimes vary a whole month. Sometimes the monsoon is as much before its time and sometimes as much after.

It has been long ascertained that in the route just mentioned it is by no means necessary to pass to the Eastward of the Nicobar and Andaman Islands; this route on the contrary is unfavourable on account of the light winds and Southerly currents found near them during the N.E. monsoon.

Vessels leaving the Straits of Malacca for the Western ports of the Gulf of Bengal, Pondicherry, or Calcutta, do not take the East coast; they adopt the channel between the Andaman Islands, passing between the Great and Little Andaman, and sometimes even to the Southward of the Nicobar Islands.

No. 7.—*Direct Passage for Sunda Strait.*

For a vessel bound through the Strait of Sunda, if she does not touch at the Cape, the best route is to enter the Indian Ocean between

the parallels of 37° and 38° S., and thus avoid the current across the Agulhas Bank; and she will then take the cross current of the Indian Ocean, which will be favourable to her.

From the meridian of the Cape she should keep between the parallels of 36° and 40°, to sight the islands of Amsterdam and St. Paul. However, many seamen prefer the route between the parallels of 36° and 37°, where the wind they say is fresher and more constant than in higher latitudes.

On leaving the meridian of Amsterdam and St. Paul, she should steer so as to cross that of 80° E., in 38° S., and the meridian of 90° E., in 33° S., steering then so as to cross the tropic of Capricorn in about 102° E.

In making to the Eastward after leaving St. Paul, should she meet with contrary winds she should not pass to the Northward of 30°, because in a lower latitude Easterly and N.E. winds are often met. It will be more advantageous to keep to the Southward in order to profit by the Westerly winds on the parallel of 38°.

From March to September, and especially in March, April and May, a vessel should hasten to reach the meridian of Java Head, and then stand to the Northward, because the Trade often veers to the Eastward, and the Westerly current is strong near the South coast of Java. It is important therefore to make the land East of the Strait of Sunda at this period, and also East of Bencoolen if bound to this port.

From May to the beginning of July, a ship bound to Bencoolen should not sight Java Head, for the passage is more direct at this period, and she should makes for the island of Engaño, and then for Bencoolen, if the wind permits. In these months the wind often varies to N.W., and then the current sets S.E.

From September to March, between the equator and the North limit of the Trade, is found the N.W. monsoon. This monsoon produces an Easterly current, and frequently extends as far as the parallel of 14° S.

At this season a vessel bound through the Strait of Sunda should not steer North when on the meridian of Java Head. She should make for the S.W. extremity of Sumatra, or the island of Engaño, and pass Westward of this cape. When she is on the parallel of Sunda Strait, she should make for it, endeavouring to compensate for the effect of the Southerly currents which prevail at this period. It is important to observe these directions from November to the beginning of February.

At the same period, when bound for Bencoolen, a vessel on losing the S.E. Trade, should keep on the meridian of Cape Achen until she is well to the Northward of Keeling or Cocos Island, or until she has reached the latitude of Java Head. She will then probably find N.W. winds to take her to the island of Trieste; passing North of it if she pleases, and South of Isle Larga, when the wind has a tendency to veer Northerly. If it veers to S.W. or the Southward, she may steer direct for Bencoolen, passing South of Trieste.

The foregoing directions may be completed with some observations on the Strait of Sunda, that may be useful to vessels crossing this strait for the Java Sea.

The Strait of Sunda is divided into several channels by islands. The Southern one, called the Princes Channel, was formerly one of the most frequented; but with a fresh breeze, the channel of Crockatoa is generally preferred, lying between the island of that name and Princes Island, or between Crockatoa and Pulo-Bessy.

Princes Channel.—On entering the Princes Channel with the N.W. monsoon, a vessel should keep near this island and the Charpentiers Rocks; during the S.E. monsoon it will be better, especially with a good breeze, to keep near Java and Frere Island. When she has reached the second point (the first is Java Head) she should make direct for the fourth, and pass it at a convenient distance. When abreast of Anjer, she should steer so as to pass between the cape and Bouton, at a convenient distance from each, taking care to keep well off the Brouwers Bank. After passing this bank and Bouton, she should steer for the Deux Frères if going to the Strait of Banca, and pass two or three miles from Point Bantam if she is bound to that bay or to Batavia.

Crockatoa Channel.—When a vessel adopts the Crockatoa Channel, she should pass North of Princes Island, giving it a good berth; from thence she should steer for the fourth point as abovementioned.

Pulo-Bessy Channel.—The channel of Pulo-Bessy affords the advantage of anchorage, so that it is sometimes preferable to the Crockatoa Channel, more particularly when working out of it with the Westerly monsoon. The Hindostan Rock is the only danger known in it.

Middle Channel.—Vessels homeward bound from China, with the N.W. monsoon, when leaving the Strait of Banca, often adopt the channel between Middle Island and Sumatra. This channel is one of the most direct.

North Channel.—When the monsoon is strong, the North Channel may still be adopted, because it can be rapidly passed with the assistance of the Westerly current. It should only be adopted when with a fresh breeze.

No. 8.—*The Eastern Passages.*

The Eastern route, through one of the Eastern straits, is taken about the end of the season, that is, when leaving the meridian of the island of Amsterdam and St. Paul from the middle of September to February.

The general route adopted is as follows. A vessel first proceeds according to route No. 7, that is, by making St. Paul and Amsterdam. From thence she should proceed N.E. so as to cross the meridian of 111° E., in about 30° S., and then stand to the Northward, gradually nearing the Australian coast, till she is on the parallel of its N.W. cape.

Some seamen consider that this cape should be sighted, but this is

by no means necessary; yet it should be passed at a distance according to the season and the prevailing winds, and especially according to the strait which is to be adopted.

The prevailing winds on the western coast of Australia, between Cape Leuwin and the N.W. cape are from S.W. and South. From April to November the S.E. or easterly monsoon prevails near the southern coasts of the Sunda Isles; at which period these winds may be expected everywhere between these islands and the North coast of Australia. But from November to March, when the N.W. or westerly monsoon prevails near those isles, variable winds are found there, although they generally veer to the westward; and as the current follows the monsoon, a vessel on leaving the parallel of the N.W. cape should keep to the westward of the strait she intends to take during the N.W. monsoon; and, on the contrary, during the other monsoon she should keep rather eastward of it. A vessel anticipating westerly winds when making for the straits of Bally, Lombock, or Allass should pass the N.W. cape of Australia at a convenient distance, and steer directly for her adopted strait.

If the S.E. wind fails her between the parallels of 18° or 14° S. lat., and she finds westerly winds there, she should be careful not to run to leeward of the strait she is making for, as the wind is often W.N.W. and even N.W. on the South cast of the Sunda Isles, between Java Head and the island of Timor.

To these general observations for gaining the straits East of Java may be added some directions for passing through them when taking the channels for China by the eastern passages.

Strait of Lombock.—The Strait of Lombock may be easily known by the large island of Banditte which divides its entrance into two nearly equal channels. The eastern channel is that generally taken, but a vessel taking the western one must avoid the West point of Banditte and give the island a good berth in light winds.

A vessel taking the Lombock Strait should keep in mid-channel between Banditte and Lombock, and afterwards nearer to the eastern than the western coast. The current in this strait is very rapid, and no soundings can be had.

Strait of Allass.—A vessel taking the Strait of Allass—which is safe and much frequented—should keep nearer to the Lombock than the Sumbawa shore, because she can get soundings near the S.E. point of the former, while the latter shore is very steep.

Strait of Sapy.—The Strait of Sapy is also much frequented, but should not be taken during the N.W. monsoon, at which time the Strait of Allass is to be preferred. A vessel making for the Strait of Sapy with light variable easterly winds should sight the western extremity of Sandal-wood Island. With westerly winds, which are generally strong, she should near the South coast of Sumbawa. A vessel once in the channel may pass through it to the Sea of Java, passing either East or West of Gilibanta.

Straits of Flores, Alloo, and Pantar.—The Straits of Flores, Alloo, and Pantar, between Ombay and the Islands of Flores or

Mangerye, are generally not much frequented. They are small, with strong currents, and therefore Ombay is preferred, or perhaps one of those West of Flores.

Ombay Passage.—A vessel approaching the N.W. coast of Australia for one of the channels into the Pacific Ocean, will find the Ombay Passage the most preferable. She should sight the eastern point of Sandal-wood Island; then pass between it and Savu, or between Savu and Rotte, if she is baffled with contrary winds from N.W. or West. Besides, it is more advantageous, especially with moderate winds, to pass East of Sandal-wood Island than West of it and in the channel which it forms with Flores. In case of having strong easterly currents with the N.W. monsoon, she would, on the contrary, take the route to the West of Sandal-wood Island, and pass between that island and Flores.

(To be continued.)

A Voyage to the West Indies, *with Notes on St. Lucia.*—*By C. R. Maclean.*

(Continued from page 361.)

The harbour of Castries, near the town, has bold water on either side, except at the Vielle Ville and Cocoanut Shoals, the extremes of which are distinguished by red beacons, with the depth of water in feet conspicuously painted on the faces of them. Both of these shoals are very steep at their edges, and a yard or two to the Southward or outside the beacons, which lie in ten feet water, you suddenly drop into twenty.

As the prevailing winds are from the East, and it being impracticable for any large vessel to turn up the harbour, it is usual when entering it to haul close round within pistol-shot of the Vigie Head, and as soon as the harbour is fairly open, to clue all up at once, and shoot up as far as the vessel's way admits, and then let go the anchor. To make further advance up the harbour must be effected by warping. Sometimes the wind may be far to the Northward, perhaps N.N.E., which enables a vessel to lay well up, and if she can weather the Cocoanut or southernmost shoal, she will fetch within a warp's length of the wharf to a very good berth, should it not be necessary for her to haul alongside. On the present occasion we were thus favoured, and stood up the harbour to within half a cable's length of the Commissariat Wharf, anchoring at about two hours after noon.

The Tapion is the southern boundary of the harbour, and has the appearance of a little detached islet, but it is a small peninsula, a ridge of rock connecting it with Cocoanut Cove. It forms one of the defences to the entrance of the harbour, being surmounted by a fort, on which are mounted several pieces of cannon. About a hundred yards

to the Eastward of the Tapion is another formidable half-moon battery, nearly level with the water's edge, that, with the guns looking down on the harbour from the Vigie on the opposite side, would be formidable opponents to an enemy attempting to force an entrance. The difficulty experienced by the commanders of the mail steamers of finding this secluded harbour in the night, having been represented to the Colonial Government, it appears that a light is exhibited in the Tapion from the day the packet is due until its arrival. It is kept up at the expense of the colony exclusively for the mail steamers, and is thus only lighted twice a month.

The town of Castries has anything but an imposing appearance. Situated in an obscure ravine at the foot of the mountains that had at one time evidently formed the shore of the harbour, it appears to occupy ground formed by the deposit washed down from these mountains, accumulated by ages; and from some portions of it being below the level of the sea, it has the disadvantage that it cannot be drained. It contains a few substantial and commodious stone buildings, appropriated as stores and public offices, that are evidently not built upon a rock; and it is possible, in a volcanic island like this, that the wave of an earthquake may one day sap away their slippery foundation, and restore to the ocean its ancient domain.

With gentle sloping hills and elevated ground on either side of this fine harbour, it is difficult to conceive the motive that prompted the early colonists to plant their homes in this dismal swamp, pregnant with poison, producing disease and death. Mr. Breen says of it, in his history of St. Lucia, "there is not any island in the archipelago that has obtained such depreciatory notoriety in regard to its climate as St. Lucia." "It is considered," writes Dr. Evens, "one of the most unhealthy of the West India Islands; and there are parts of it that assuredly merit this unenviable celebrity, amongst which the town of Castries is one." From what I have said of its locality, with the choke damps of malaria and miasma poisons pent up beneath the ground floor of every dwelling, the occupants living and breathing it day by day, and sleeping above it night by night, it would indeed be a miracle if it had not acquired that unenviable celebrity which has been very justly assigned to it.

The streets are wide and laid out in parallel lines East and West, North and South, crossing each other at right angles; the whole presenting the form of a quadrangle. It contains from 450 to 500 houses, with a population (according to a census taken in 1851) of 3,102 souls, 355 of whom were Europeans, (French and English,) the rest creoles, together with mixed and African races, in the grand total exhibiting a great preponderance of females, the figures showing 1,146 males, 1,956 females. The streets are mostly paved in a corduroy style, the ruggedness of which is very painful to pedestrians afflicted with tender excrescences! and so prolific is the alluvial soil of Castries, that it requires great assiduity on the part of the town wardens, and much labour and expense to the householders, to keep down the

crop of grass that is constantly springing up before their doors, and which all their exertions cannot entirely subdue.

The houses to which I have alluded are occupied as public offices and stores. In the western portion of the town they are of stone, or brick, substantially built, and commodious; but with a few other exceptions, the majority are of wood, covered with shingles, and wear a neglected and dilapidated appearance, more like barns and outhouses than the inhabited dwellings of men. In the upper or eastern part of the town, chiefly occupied by the humbler classes, their appearance is still more dolorous, and the houses degenerate into a set of nondescript cabins, suggesting the idea of a hat-box enlarged and risen upon, after having served its original purpose. Of public buildings in Castries, the Protestant and Catholic churches are the principal. The former can hardly be said to belong to the town, for assuredly had the authorities been commissioned to devise the best means of preventing the protestant portion of the community from attending divine worship, they could not have devised a more effectual scheme than that of placing the church where it stands. It has certainly the advantage of looking down from elevated ground on the swamp in which the town stands, though surrounded by the poisonous miasma of others in its vicinity. Put the church in the middle of the parish, is a trite saying that one would think everybody knew; but it appears the *savans* who had the management of the protestant church of St. Lucia did not; and therefore the protestant inhabitants have to traverse the town, under a broiling hot sun, for half a mile, to reach their temple, in a state of fatigue and perspiration that by no means predisposes them to devotion. The catholic church has been erected with more consideration, and stands in the centre of the town, and within five minutes' walk of the whole community. The site of it is on the East side of the Place d'Armes or Square of Castries, which said square possesses considerable extent, and is adorned with boxwood trees and a never failing crop of grass. In the centre of it is a pile of bricks and mortar, being intended as an ornamental monument to commemorate the introduction of water to the town by the enterprising manager of the Colonial Bank. A small stream of muddy water, issuing from the top, is intended for a fountain and indicates it to be a failure. The water, for want of a proper channel to escape by, keeps the central portion of the Square in a kind of perpetual swamp.

The wharves of Castries are considerable, and capable of affording convenience for a greater amount of commercial activity than they now display, or that is likely to all appearance to occupy them for years to come. They are constructed on piles closely driven into a bottom of clay, and braced together and capped at top with hard wood planks. The piles used in the construction of the wharves are formed with the white cedar of the island, that is most invaluable for this purpose, resisting as it does the ravages committed by the marine worm, (*Teredo navalis,*) so destructive here to every other description of timber. The cedar attains a great size in St. Lucia, and is plentiful both in the

interior and on the coast, particularly on the windward side of the island, where it is most abundant.

The depth of the water at the wharves varies from three to fifteen feet, and it is a pity to find it gradually diminishing from the want of due conservancy. The harbour is the receptacle for refuse of all kinds, the depth of water is decreasing on an average of three or four inches per annum. Consequently, in a few years, the wharves will only be accessible to boats where ten or a dozen years ago a ship of the line might have hauled alongside.

The town of Castries may boast the honour, for it does enjoy the blessing of a corporation. This dignity was conferred on it in 1851, under the enlightened administration of Governor Chas. H. Darling. This important boon, and the abolishment of the ancient corvee system of keeeping the public roads in repair, are imperishable memorials, that will preserve his memory among the tax payers of St. Lucia! The application of a municipal board of administration to St. Lucia, may be judged by the fact, that (setting aside the civil officers of government) there scarcely remains a dozen individuals in the island fit to hold office as town councillors, or who even understand the nature of such an institution. In the whole population of the first district, which, within a radius of fifteen miles, includes the town, there were but 900 individuals of every age and sex who could write, and little more than half that number who could speak the English language; moreover, the majority of the writers and speakers of English, are Mico schoolboys, in which respect this institution has conferred great benefit on the colony, were it not that all the scholars look forward to be councillors, instead of useful and industrious labourers. Here, indeed is seriously exemplified one of the truths of the old adage, that "a little learning is a dangerous thing."

The first selection to fill the civic chair had to be made from among the public officers, and fell on the talented Mr. H. H. Breen, the author as I have observed, of the *History of St. Lucia*. the *Diamond Rock*, a poem, and a more recent work, entitled, *Modern English Literature, its Blemishes and Defects*, being a criticism on English authors, both ancient and modern; realizing the fact, that the schoolmaster is truly abroad. The abilities of Mr. Breen were called into requisition to initiate the young councillors into the mysteries of municipal government, and to set the infant institution on its legs. This gentleman has now a wider field for his abilities and usefulness to the colony than the civic chair could afford him, having been recently appointed to administer the government of St. Lucia under Mr. Hicks, the Governor in Chief at Barbados. With the exception it may be of gratifying the vanity of the few members who took their seats at the board, and the opportunity afforded one or two members of the bar to practice their maiden English in debating the affairs of the nation in general and the corporation in particular; the bulk of the inhabitants soon discovered that all they had got by the affair was the honour of having a Mayor of Castries, and an additional tax of fifteen per cent. on their food, and seven and a half per cent. on their dwell-

ings. These were all the advantages the French part of the community in particular could see in this truly English institution. It is to be observed, that St. Lucia being a conquered colony, the religion and laws of France were established anterior to the final cession to Great Britain in 1813, and to this day the French language is all but universal there. In 1827, English commercial law appears to have been introduced; and subsequently, in 1838, the French language was abolished in the courts of law. The members of the bar being all French, were rather taken aback by this new order of things; but with a praiseworthy perseverance they soon overcame this difficulty in their practice.

Mr. Breen, then Registrar of the Court, has given a most amusing specimen of the early attempts at English pleading at the St. Lucia bar, really worth transcribing, both for the ingenuity manifested in the substitution of words, and the drollness of the effect; and I shall give the following from the pages of Breen's St. Lucia.

Defence of Pagol.

May it please the Court.—I appear in this case for Mr. Philip Pagol, the *defender*. Your Honours have heard the *plaidorie* of my learned *compère*, and *certes* a more extraordinary piece of forensic fanfaronde has seldom been exhibited in a court of justice! Well might the uninitiated exclaim, oh! the glorious unintelligibility of the law! The *pursuer* first proceeds to raise a foundation of lumber, and thereupon he erects a babel of words,—crowning the whole with a chimney, to show that his arguments must end in smoke. It will be no difficult task, I apprehend, to demolish his *echafandage:* and without expatiating *de omnibus rebus et quibusdam aliis*, after the fashion of the *adverse* party, I shall grapple at once with the facts of the case.

Somewhere about the year one thousand seven hundred and sixty-five, the *defender's anteur* purchased the lot of land adjoining that of the *pursuer*, (and here I may observe, *en passant*, that the honourable Mr. Singleton has proceeded on a false narrative of the extent of his lot, which only comprises a *carre* and a half). The *defender's anteur* engaged himself with the *anteur* of the *pursuer* to have a *métoyen* wall constructed between their respective lots: now my client's *anteur, qua bonus pater familias*, has punctually implemented his part of the contract, while the *pursuer* has failed to do his. It is, therefore, abundantly obvious, that Pagol has *de facto* as well as *de jure* the *dominium* of the wall in question. If the *pursuer* has gone to sleep instead of implementing his part of the engagement, he must take the consequence; *vigilantibus non dormientibus inserviunt leges.* I humbly apprehend that the position of the parties must be reversed; and that, *mutatis mutandis*, my client is entitled to damages for breach of agreement and *warrandice*. In further elucidation of this position, I request the Court to cast an eye over the *hypothecary incription* in the *dossier* of my client, which I now submit on the Court's bureau.

Here I might pause for the honourable *pursuer's* retort to these

dilatory pleas; but from a note which has just this moment been placed in my hands, I am prepared to bring forward a peremptory exception. It now turns out that the wall in question is the *pro indiviso* property, not of the *defender*, as I had been led to believe, but of the Demoiselle Adelaide Coco; and that the *defender* merely conducts the erection at her request. Therefore the *requete* introducing the instance is egregiously inept, it is in *gremio* a perfect nullity, and must fall to the ground. Therefore the *defender* has been most unwarrantably, I might have said illegally, dragged into Court, and is entitled to damages (Domat. vol. iv., titre 5,—*de damnis et impensis*). Wherefore I move the Court to grant me *acte* of my *reverses* to prosecute, *en temps et lieu*, for the gross, wanton, and unprovoked libel that has been levelled against my client's character.

My learned brother has referred us to Johnson's Dictionary, the convenient pocket edition, I apprehend, which he carries about him; but if he will take the trouble to *feuilleter* the folio edition, with notes and annotations, it may throw some light upon the meaning which *aught* to be attached to the word "wall." That he will find in my study, to which I beg to refer him *brevitatis causa*.

My conclusions are: *primo*, that it may please the Court to interdict the *pursuer* from molesting and disturbing my client in the quiet and peaceable erection of his oven, or rather Demoiselle Coco's oven, and the necessary walls and chimney of the same; *secundo*, that the *ordinance* of the Court *ad factum prestandum* be *cassed*, rescinded, and annulled, as the fact has become *imprestable; tertio*, that the *pursuer* be *decerned* and adjudged to empty his hands into those of the *defender*, of the sum of £200 sterling, in lieu of damages, for the injury inflicted on his fair fame, by the acts and proceedings of the *pursuer*, and said *defender* be *reponed* and restored there again *in integrum;* and *quarto*, by way of *subsidiary conclusions*, that the *pursuer* be dismissed *simpliciter* under the law of common sense, save his recourse against *qui de droit*, and this is justice.—Such is a specimen of forensic eloquence in the courts of law at St. Lucia.

At a former period, owing, it may be supposed, to difference of language, much ill feeling was entertained between the French and English, that happily has passed away. Time, intermarriage, and a better acquaintance has entirely eradicated the jealousy and bickering of party spirit, and friendly intercourse is now the rule. As to the inhabitants—both French and English—they are not a whit behind any of the West India colonies in kindness of disposition and hospitality, for which these climes are famed. In proof of this, it may be advanced that in St. Lucia no hotel has yet succeeded with any advantage or profit to the proprietors; the hospitality of the inhabitants has ever been ruinous to the speculation. This may say much for the hospitable character of the inhabitants, but it is not without its inconvenience too. For, let us suppose a family to be landed on the wharf from the steamer, with all their luggage, and perhaps attendants, in a deluge of rain, at one or two o'clock in the morning, unexpected by any friendly resident; they would be as badly off as if dropped on a

desert; their letters of introduction would not pilot them to the residence, and they would have the cold comfort of tramping the wharf, dripping wet, until daylight. Neither Miss Betsy Parker nor her *confreres*, who are always charitably inclined to shelter the homeless stranger, could afford to burn a candle or to keep a porter on the watch in the usual way of business.

According to the census of 1851, the population of St. Lucia was 11,712 males and 12,473 females, total 24,195: of which 934 were Europeans, viz., males, 463; females, 521. In the same year the exports of St. Lucia were 7,560,000lbs. sugar; 22,327lbs. coffee; 105,877lbs. cocoa; 121,578 galls. molasses; 958 galls. rum; and 144 tons logwood.

This information on St. Lucia is afforded by a little pocket almanack by Charles Wells, printer and publisher of the *St. Lucia Palladium*; a little treasure highly creditable to its author, who while he conducted the *St. Lucia Palladium* proved himself the best caterer of news for public information and amusement perhaps in the West Indies. Too soon, however, he became a martyr (perhaps in some instances) to the truth to evade the fangs of the law, and at the same time daring to speak the truth required more caution than Mr. Wells appears to have possessed or cared to exercise. He wielded a dangerous engine with a fearless and dexterous hand and dealt his missiles on friend and foe. After being several times incarcerated in the royal jail for libel he was obliged to leave the colony, to the regret of many, who only desired that he would have kept a more even course.

There is but one sugar estate at Castries—named the Entrepos—that ships sugars from the quays. The rest of the produce of St. Lucia is brought thither by boats and droghers from the shipping bays of the different estates,—these droghers being small schooners and sloops of from twenty-five to thirty tons burthen. The expense of droghage, as it is conveniently termed, and loss of time incurred in this process, in these crazy and ill-appointed craft, has of late induced the European vessels to avail themselves of the fine bays of Soufrere, at the West end of the island, and Vieuxport on the S.E. side, facing St. Vincent, from which it is only fifteen miles distant. The position of these are contiguous to the most cultivated quarters of the island, where three-fourths of the whole sugar crop is manufactured, and its embarkation is thus much facilitated. Nevertheless, although a ship completes her loading at either, and it occupies occasionally two and three days to get from Vieuxport to Castries, the colonial authorities, in order, probably, to gratify the people of the capital with the sight of a ship off their harbour, or to see the first and last of her, insist on her coming there before granting a clearance. I have lost much valuable time, and a suit of sails into the bargain, by beating up to Castries in the face of a norther, that, had I been permitted to bring my papers to Castries by land, and by returning provided with my clearance, I should have avoided this serious loss in wear and tear and loss of time.

We will suppose that a ship is loaded at Soufrere or Vieuxport on the 31st July and is appointed to sail on the 1st August. After that

date a double premium is put on ship and cargo, but by this absurd regulation—of no manner of earthly use—she is compelled to go and anchor at Castries, at this dangerous time of the year, in the most exposed position at the harbour's mouth, merely to do that which might have been done two or three days before, and she would now have been on her way home. Instead of which the ship thereby incurs £100 additional and unnecessary expense, and at so dangerous a season that the destruction of ship, cargo, and all on board is risked, merely to indulge the Colonial Treasurer with a sight of her, as, after all, he has to accept the Master's declaration as to her contents, and certainly he can be no wiser from seeing her fully a mile off at the harbour's mouth!

Why should not a vessel having no cargo for Castries be permitted to go to any bay in the island that she may find most convenient for loading with colonial produce and be exempt from that vexatious delay of coming before the port of Castries to make her entry, provided that the Master produces his papers in proper form at the custom-house. This he can do within eight hours of his arrival at the island, either by land or by boat, even from Vieuxport, which is the remotest from Castries.

However imperfectly I may have represented this odious regulation, the folly of it, I trust, is evident; it cannot fail to be seen, and the mischief which it inflicts on the shipping interest. In every other British colony—and, formerly, here also—the Master is allowed to enter and clear his ship from any of the shipping bays in the colony, and it seems an absurd stretch of authority in St. Lucia that the value of the Master's declaration should depend virtually on the distance of his ship—at one mile it is valid, at five or fifteen it is worth nothing, in fact cannot be received!

As already observed, the expense of drogherage and loss of time from the inefficiency of the craft at present employed in the business of droghering make it absolutely necessary to proceed down the coast with the ship; and when we consider that everywhere else restrictions are being removed, and facilities being offered to commerce, to be trammeled in St. Lucia with this useless and obnoxious regulation would seem only to require being represented in the proper quarter to be abolished. It is to be hoped the enlightened policy and good sense of Mr. H. H. Breen, who now administers the government, will look into this matter, and at once remove a regulation so oppressive to the shipping interest. In fact, I really do not think there is either law or ordinance to enforce it. The only ground, so far as I have been able to discover, on which it is justified is an order from the Board of Customs at home, some ten or twelve years ago, to Mr. Collector Cox, to discontinue clearing vessels on the coast till examined by an officer of the customs. The order appears to have originated from information having been laid that coffee from Martinique was being clandestinely introduced, and then exported as the growth and produce of St. Lucia.

The alterations that have since taken place having now removed

the cause that led to this order being sent to Mr. Collector Cox, and all imperial duty being now abolished, there can be no reason, in reference to clearing ships at Vieuxport or Soufriere, why the old practice should not be again renewed. It will be seen by a look at the port charges that a considerable tax is levied on the ships loading a cargo at St. Lucia, in the shape of tonnage dues, &c., without increasing their expenses by vexatious regulations. The port charges at St. Lucia on a vessel exceeding fifty tons are as follows:—Tonnage dues, 1s. 8d.; wharfage duty, 10d.; Harbour-Master's fees, 2d.; water rates, 2d. Making a total of 2s. 10d. per register ton per voyage, with pilotage, when required, 4s. per foot, and copy of harbour regulations, 1s. It appears by the Colonial Treasurer's accounts that from the 1st of January to the 31st December, 1856, the sum of £648 6s. 10d. sterling was collected and paid into the treasury for tonnage dues alone.

The droghering* at St. Lucia is, as in most of the islands, safe and easy to leeward, with smooth water and, generally, fine sandy beaches from whence to ship the produce; but on the windward side it is very different. There, the bays being exposed to the eastward, the sea rolls in from the ocean; and, though in most of them there is a little creek to shelter the vessel when inside, there is no chance, when once in, of getting out unless the wind is light and the sea smooth. The difficulty and risk of droghering from the windward bays may be inferred from the number of vessels that are wrecked. Two or three are annually lost on the weather side of the island, principally in beating out: missing stays is certain destruction.

To obviate this loss of property and to render the droghering in general, and from the windward in particular, more safe, expeditious, and efficient, the prospectus of a "St. Lucia Steam Droghering and Conveyance Company" was a year or two ago submitted to the St. Lucia public. But, either from apathy or want of enterprise, the projector met with no encouragement. To a nautical observer, a glance at the windward bays of St. Lucia is sufficient to satisfy him of the value of steam. Well sheltered by barrier reefs, through which there is but a narrow channel here and there, with smooth water within, the danger of getting out, and in doing which nine out of ten of the sailing vessels are lost, and often after being pent up for weeks; these difficulties would be entirely overcome by the application of steam. The precariousness of droghering, as at present conducted, considerably depreciates the value of estates on the windward side of the island, by the uncertainty of a market in the first place, and in the second place from the loss by damage, and interferes sadly with commercial engagements when their first object is the punctual shipment of produce.

* The transfer of produce along the coast for shipment in droghers, a term well known in the West Indies. The reader will accept the participle of an unknown verb.—P. D.

(To be continued.)

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria and Victoria River.*

(Continued from page 368.)

At sunrise on the 8th of August, after getting the vessel's head on sixteen points of the compass, to obtain the deviation on each, we tripped our anchor and made sail with her head once more to the northward, to leave, with no regret, the Gulf of Carpentaria. The wind was light from S.E. which afterwards came round to N.E., fell calm at midnight, with heavy dews; then S.W. and S.E. at sunrise. Our progress was therefore slow.

During the last few days the winds seem to have daily gone round the compass. Commencing at S.E. as the sun rises, they gain strength with the sun, drawing round to East and N.E. as the sun declines, then to the northward; at midnight a calm of short duration, followed by very light airs from N.W., West, and S.W., until daylight, when it again assumes its S.E. direction as the sun appears on the horizon. These appear to be the characteristics of the winds in the depth of the gulf when the S.E. trade or monsoon is not fresh.

The morning of the 10th brought us a dense fog, lasting seven hours, and when it cleared away Bountiful Island lay before us, N.N.W. In the afternoon again becalmed. At sunset light N.W. wind; Grassy Hill N.W. about seven miles.

This morning (11th) a few minutes before daylight I was suddenly called to look at "land close to the ship." To the N.E. of the vessel was a dark mass apparently close to us, the extremes on the horizon being S.E. and N.W. There was a gentle breeze from the S.W., and a heavy dew had been falling all night. A sandy beach was plainly visible beneath the land, which appeared in peaks, and seemed to be formed of mountains apparently 3,000 or 4,000 feet high. The anchor was ordered to be cleared immediately for letting go.

I now began to consider that there was no land in the gulf so elevated. The land of Bountiful Island, near which we ought to be, was not half so high as our mast-heads. When all at once, in the midst of my deliberations, the mass began to ascend (it may have been doing so before, but we did not perceive it), quickly changing its outline and form, and as day dawned a sudden puff from the N.E. passed over us, to which we reduced our canvas—its force, however, was not more than three to four; some rain passed North of us, and a light northerly wind put an end to the deception.

This is the third squall, with its strange accompaniment that we have had. The phenomenon was extremely grand and was more imposing when assisted by the darkness of night. The dense body of vapour, so exactly resembling lofty peaked land, and it was the dawn of day in the East that gave the appearance of a sandy beach underneath. However, no changes in barometer or thermometer, but a heavy dew falling all the time, and it had been preceded by brilliant

meteors. The mass was gradually rolled up before the wind and after passing the zenith settled down in the S.W. horizon, but small particles of cloud, not connected with the main body, were exceedingly agitated and quick in motion, flying about in all directions until quietly dispersed by the light N.N.E. wind that ensued.

With the assistance of the ebb tide, setting North, we endeavoured to get to windward against light and variable N.W. and N.E. winds; but at eight we were compelled to anchor about six miles S.S.E. of our old acquaintance, Bountiful Island, to avoid being drifted to the southward by the flood tide, as our fate had been last night.

This was enough to try the patience of any one, interested or not. On endeavouring to enter the gulf we had to contend with light S.E. winds and calms. On going out we meet the reverse, light N.E. and N.W. winds along with calms; our progress must therefore be tardy.

This evening we caught a dwarf male shark, eight feet in length. He had no parasites on his liver. In his stomach were portions of turtle, crabs, and other odds and ends, with a few circular gelatinous perforated plates about the size of a shilling,—puzzling us amazingly to account for them.

At daylight on the 12th we had a similar squall to that of yesterday; but, happening a few minutes later, it had not that imposing appearance imparted to it by darkness that the previous one presented.

We were now close to Bountiful Island. The wind being light and adverse, I landed and placed a notice on an elevated whitewashed staff, one of the *Torch's* late beacon-staffs, with her name cut deeply on it, intended for Mr. Gregory and his party. It was to the effect that we were in search of them; that, not having found them in the Albert River, we were on our way to the Victoria; that water was on Sweer Island, and that turtle were in abundance on this. While thus employed, the boat's crew turned and brought on board twenty-one turtle without any difficulty. Having left the foregoing notice of our visit, I had just time enough to visit the graves, of which I had previously heard from one of the boat's crew.

In the midst of a hard sandy patch of ground near the centre of the island, we discovered the complete skeletons of five persons, who appeared to have died the victims of starvation, after having been cast away. They all lay in the same position with their heads to the North, and it appeared no attempt had been made at forming a grave for them, the drift sand having accumulated about the bodies—thus Nature performed what man had left undone. They had no spears or other weapons or any implements near them; a few turtle bones and dead shells of the haliotus and helix were in heaps about them. The front teeth of the upper jaw were perfect in all, showing that they were not natives of Australia. We concluded that they were probably a portion of the crew of the Malay proa, the remains of which we found on Sweer Island. The North Australians generally bury their dead in trees or caves, wrapped up in bark or matting, and with their heads to the eastward, and have always some of their war or fishing implements near them. These remnants of humanity were without

any of these forms of funeral ceremonies, and I directed them to be carefully covered again with sand.

We returned on board at 10.30 a.m., and made sail to a light adverse wind, having only the assistance of the ebb tide to the North to help us along, and, as a variety in our day's work, we caught another shark, having in his stomach nineteen inches of the back-bone of the shark taken yesterday, and a shoulder-bone of turtle.

As we drew to the northward by the morning of the 14th our prospects of leaving the gulf became a little brighter, for it brought us a fresh and pleasant breeze from the eastward, which carried us with it at the rate of two or three miles per hour; but, as usual, it went down with the sun, and was followed by a light S.W. air.

We here availed ourselves of the opportunity of ascertaining the transparency of the sea by means of a plate nine inches in diameter. This was lowered, and was seen sixty-six feet below the surface, exactly half the depth of water—twenty-three fathoms, sand and mud. Scarcely was this completed when seven sharks were about us at once. Two of them were hooked at a time; one of which measured nine feet in length, and contained the usual meal in his stomach. The thin perforated gelatinous plates before-mentioned, and which had assumed such a contorted shape, were the vertebræ of the same fish. A great quantity of oil was collected from the livers of the two sharks we had killed (about two gallons each), which burned well for ship's purposes. The liver was merely allowed to remain in a copper kettle in the sun, and was strained off into oil cans.

On the 17th we were again in new and unexplored waters; the same vigilance commences as before; all eager to get a sight of something new. The mast-head is constantly visited for any new object on the horizon. A small porpoise was caught, the flesh of which was very good and much sought after.

The wind commences further North, being first at N.E., and then East as the sun mounts the sky, freshening as it approaches the meridian, and gradually diminishing in force as it sets, and veering to S.E., South, and, during the night, to S.W., and sometimes W S.W., commencing again with the sun at N.E. and East in the morning.

On the 19th, we had fairly gained the region of the S.E. trades; and at noon we were only sixty-three miles from Cape Wessel, which was then bearing N. 60° W. At five we saw land, bearing N.W., distant about three or four miles. Sounded in 39 fathoms, coral, and hauled up North until morning broke.

None of the charts having a positive sounding in the vicinity of the cape within sixteen miles, that would indicate its vicinity to those coming from the Eastward, I sounded round it on different bearings and at the distance of four or five miles found irregular bottom, with 43 to 25 fathoms, coral, gravel, sand, and mud. These few will nevertheless be a guide to ships shaping a course from Booby Island.

The island to which Cape Wessel belongs is uniformly level, and from forty to fifty feet high, with a perpendicular cliff on its N.E. face. Small sandy bays indent the coast, and a clump of trees here

and there on its summit interrupt the regularity of its outline. On the West side of the cape is a sandy bay, with a clean appearance, offering anchorage. No natives nor smokes were seen, although the late Adml. King discovered some in 1819.

In the voyage of the *Beagle*, vol. ii., p. 330, an error in the latitude of the cape is attributed to its not having been seen at the distance of eleven miles. The cape is in its proper latitude, which I found to be 10° 59′ 7″ South, and it was plainly seen at the distance of seventeen miles and a half from the deck, bearing then E.b.S. ½ S. magnetic.

After obtaining my sights for a meridian distance, I steered a course due West that would enable me to fill in a space where soundings were necessary, and these were added to the chart.

In compliance with the terms under which the *Torch* was hired, she was now made over for the present to her owner, Mr. Watson, who had accompanied us, although I still continued to navigate her, by which I was enabled to pass over blank spaces on the chart, without occasioning any delay whatever to the vessel's progress. The *Torch* had been thirty days under sail, four under steam, in the gulf, her expense being £732 to the Government.

On the 21st we found ourselves fourteen miles North of our latitude at noon, and attributed it to rounding the vessel to the wind every hour to sound. This I did not regret, as it gave me a broader line of soundings, which were extremely regular, from 25 to 33 fathoms, gradually increasing, the bottom soft mud. The current was therefore about 0·6m. per hour to the westward. I am led to think now, although I have no direct observation to prove it, that the currents partake more of tides, being to the Westward during the day, and to the East during the night, the former being the stronger.

A brisk S.E. wind carried us along all night, with fine weather, freshening occasionally, with all possible sail for the Victoria River.

At noon on the 22nd, we found a trifling current to the Eastward against us, and at 2h. p.m., we passed the entrance of Port Essington, a place associated with my early days in China, when its fame spread among us, and its unhealthiness, compared even with that of the African coast, was spoken of by every one who had friends connected with that settlement. Great discontent and internal bickerings had made it more miserable than it really was.

I regretted much not being able to visit this oven, (as it is called by some writers,) our former capital of North Australia, for an idea has been lurking in my mind, that if Leichardt still exists, (which is not at all probable,) this is the only possible place in which to find him. He knew that he could find provisions there; he knew the place, and he knew the way to it. It appears to me also that it is probable, the vessel, or some portion of the expedition we are now in search of, are there, if they have left the Victoria for the season before the N.W. monsoon commences.

Port Essington, as a harbour, is good and spacious; but as a settlement, as a depôt for steam communication, or a retreat for ship-

wrecked crews, it is ill adapted. For the first, it is unhealthy! for the second, it is out of the route; and for the latter it is 600 miles from the general scene of such disasters. Moreover, Port Essington is exposed to all the violent ravages of the N.W. monsoons, and receives but a small proportion of the benefits of the fresh S.E. trades. It was here H.M.S. *Pelorus* was fairly blown "into the bush," and twelve brave fellows perished! It was abandoned in 1849, and the persons and stores removed by the *Mæander*, Capt. Hon. H. Keppel. An interesting and detailed account of this "unhappy and unfortunate spot," will be found in the first volume of the voyage of the *Rattlesnake*, as well as in several numbers of the *Nautical Magazine*.

Such was the *fourth* attempt to form a settlement in North Australia, all of which have failed! The *fifth* seems likely to be on Albany Island, Cape York, admirably adapted for it, standing high, and enjoying the full strength of the S.E. trades. What effect the N.W. monsoon has on it, is not yet known; but steam communication *must* pass within a mile of it, and it is in the immediate vicinity of the shipwrecked!

At ten in the forenoon the high white cliffs of Melville Island bore S.W., agreeing with the dead reckoning. The instant we were seen smokes in all directions burst forth.

At noon, the North part of the sand spit was due West, and a good meridian altitude gave the latitude 11° 5′ 2″ S.; it is placed in Capt. Stokes' chart in 11° 6′, and in Capt. King's 11° 4′. There has been quite time for the sand to accumulate, (thirty-four years,) an effect which is more than probable.

The cliffs on a S.W. bearing are white sand; but when they bore South-Easterly, appeared red. On this latter bearing the sand bank was found to have extended fully a mile to the Eastward, the breakers being considerably outside it.

Melville Island, in the vicinity of the cape, is moderately elevated, about 100 feet, and densely wooded, having a face of regular sand cliffs on its N.E. side, and a low red cliff a short distance to the Eastward of the cape, which is a low sandy broken point. Point Piper, the western part of the island, is a bold and nearly perpendicular bluff.

This day the *Torch* again comes into my possession, having been only three days from cape to cape, a distance of 370 miles,—a good run for this latitude.

In the course of the night I was roused by a strange and most unaccountable noise about the vessel. I have heard the singing fish of the East Indies, which adhere by suckers to vessels' bottoms, and keep up a continuous singing all night; but this, which was like the noise of a boiling cauldron, was nothing like theirs. I attribute it to an under stratum of current or tide ripple; but there was none apparent on the surface: it lasted about three hours. Several of the watch below obtained lanthorns, and went round to see where the water was rushing *into* the ship. It was much more plainly heard forward than aft, and only heard below. It was not unlike the trem-

bling of the ship when the water is about to boil in the boilers on getting the steam up.*

I seldom went on deck with spirits more elevated than I did this morning, the 24th. A fine clear day, an "Australian sunrise," which is so beautiful and still so short, a moderate breeze from the Eastward, and the sea as smooth as Farm Cove, Sydney, with the prospect of reaching the Victoria River in a couple of days. At noon we had been set direct on our course S.W.b.S., twenty miles in eighteen hours, since rounding the Mermaid Bank.

Towards the afternoon the wind gradually fell away, and also drew ahead of us to South and S.W. I determined at once to get the steam up, as we were but twenty-four hours' steaming from the river, and having apparently lost the S.E. trades, and with the warning of the Albert River before us, making good sixty-five miles in five days.

The order for steam and floats was given, and before dark we had all sails furled, and were steaming seven knots an hour, half speed, against a light head wind.

On the morning of the 25th, with alternate feelings of hope and despair in regard to finding Mr. Gregory, and in a dead calm, we were progressing at the rate of seven knots per hour, and finding a set of ten miles in sixteen hours against us, I was glad that I had come to the conclusion of getting up steam, as we passed on merrily over a sea covered apparently with sawdust.

But in the evening finding a current evidently against us, we were compelled to anchor for the night in 14 fathoms; after which, a rocket and blue light were fired, in the hopes that our position would be observed by Mr. Gregory's party.

At daylight the next morning Point Pearce was East about five and a half miles, when we made for it; but from the indistinctness of the outline, and the haze over the land, it was difficult to make out any feature. Passed through the race off the S.W. point, and found 3 fathoms, one less than found by the *Beagle* (when the cliff bore N.E.)

It was at this point that Capt. Stokes, of the *Beagle*, received a spear wound from a treacherous party of natives, which nearly proved fatal, while obtaining observations, on December 7th, 1839.

We passed round the bay in the *Torch* as nearly as we could, and carefully as well as eagerly examined every tree and log which would bear a mark of our people; (it was here they first landed, in September, 1855;) but not yet could we discover a vestige of them. I therefore bore up for the Victoria River. No natives were to be seen with whom I could communicate. They of course had fled at first

* Might it not have been the effect of some internal commotion underground, preparatory to an outburst of lava from a submarine volcano, for the moderate depth the *Torch* was in would place her close over it? All these conditions are similar to those experienced by ships during earthquakes, and it is even recorded that the effect of the great earthquake at Lisbon was felt on board ship far away at sea—those on board imagining that it was immediately beneath them.—Ed.

sight of our vessel rushing through the water without the aid of sail, smoking like an Australian bush fire, and leaving, besides a tail of smoke, a long boiling bubbling wave behind her. They *were* surprised at seeing the *Beagle*, what would they think of the *Torch!*

We steered S. ½ E. for the entrance of the river, passing close to the S.E. end of the Mermaid Bank, carrying 8 to 10 fathoms, with some casts of no bottom all the way. When Table Hill and Fossil Summit were in one, I sounded closely to ascertain if the *Beagle's* end of the bank extended further. But no less water than 8 fathoms were obtained; it was then half ebb tide.

At noon we entered the Victoria River, between two small dry sand banks. And it is a curious fact, and one that did not pass unnoticed by us, that the *Torch* should be the first steamer to enter this river, and that too on the anniversary of the natal day of her most gracious Majesty's Royal Consort, the river likewise bearing the illustrious name of "Victoria." The *Torch* of course was dressed in all her colours, and at noon a royal salute, the first that found echoes among the mountains of this stream, pealed forth, with cheers from the loyal and devoted subjects of her Majesty embarked in her. These ceremonies were followed by others in due course, and our hopes had fairly overcome our fears that a few hours would bring us to those we were so anxiously in search of. Alas! how little did we think that all our joys would soon be annihilated! that what now was full of joyful promise was in a few minutes to be turned to cheerless, hopeless despondency.

(To be continued.)

The Atlantic Telegraph Cable.

[We are indebted to that intelligent paper the *Daily News* for the substance of this account.]

The preparations for this grand international enterprise are now rapidly approaching completion, and there is every reason to believe that by the beginning of August the *Agamemnon* and *Niagara* will have commenced depositing in the Atlantic the cable which, it is to be hoped, will cement the amicable, political, and commercial relations of England and the United States. Both these vessels have been shipping the cable, one at Birkenhead, where Messrs. Newall and Company are under contract to supply one-half the entire length, and the other a little below Greenwich Hospital, where the other half is being supplied from the works of Messrs. Glass, Elliott, and Co., of East Greenwich. Each firm has undertaken to furnish 1,250 miles, and there will be a surplus which is believed to be amply sufficient to provide for all exigencies and contingencies which it is reasonable to anticipate.

The scene now presented at the works of Messrs. Glass and Co., and on board the *Agamemnon*, which is moored off them, is one of extreme interest. On entering the manufactory, one is conducted to a room in which the electric wires, seven in number, are seen, encased in three coatings of gutta percha, as received from the works of the Gutta Percha Company, in the City-road, London. Here the casing, with the aid of a serving machine, receives a covering of tarred yarn, after which it is accumulated on a large drum. Thence it is conveyed, by the action of machinery, to a number of bobbins, which are fixed to a rotatory machine, called the closing machine, and being drawn upwards it receives a final casing of eighteen strands of iron wires, which, meeting in a narrow aperture, are twisted round it at the meeting point. There are five of these closing machines constantly at work day and night, and the whole complete about twenty miles a day. After this process, the cable is passed through a tar-tank, the heat of which is regulated by a thermometer, and being afterwards cleaned by means of a brush, it is then formed into huge coils, preparatory to its being passed to the *Agamemnon*, a work which is in constant operation.

That part of the cable which is intended for the shore ends is, as usual, of extra thickness. On the Irish side of the Atlantic this portion will be about twenty-five miles long. On the Newfoundland coast, where the ocean becomes deep almost immediately, it will be only about five miles. On both sides, however, the diminution of diameter is to be effected gradually, so as to avoid any mechanical danger. One of the most interesting features in the process of manufacture is the joining of the wires, which takes place about every 2,000 yards.

Nothing could be more beautiful than the welding process in the joining of the cable. The bevilled parts of the wire having been united, thin strips of gutta percha are wrapped over, and welded with the aid of a flame of vapourised naphtha; these are ultimately covered with a thick coating of the same material, and, in order to strengthen the cohesion between the old and new gutta percha at the point of junction, a portion of the latter is afterwards cut off, prior to its being welded with the former, which is warmed, as before indicated, for that purpose.

After witnessing the operation it is impossible to doubt that the junction is perfect. This point is of the more importance, inasmuch as fears have been expressed as to the practicability of effecting a perfect union in the middle of the Atlantic, where, according to present arrangements, the *Agamemnon* and the *Niagara* are to part company, the former to return to this country and the latter to convey her portion of the cable to Newfoundland. If the welding, or junction, be as simple and facile a matter—and there is no apparent reason why it should not—in mid-ocean as at the manufactory, a short time will suffice to tie the international knot. The prospect of a successful junction where these two vessels are respectively to begin their task, has been rendered more secure by an ingenious contrivance just invented

by a German mechanic of the higher class, for obviating the strain which might be expected to occur. It consists of the use of two eyes that interlock each other, and the result will be, that whatever strain there may be will be entirely diverted from the cable. There is a separate apartment in the manufactory called the testing-room, furnished with all the necessary apparatus for testing the continuity of electric currents before the wire is finally deposited in the hold of the *Agamemnon*; and the tinkling of tiny bells gives warning of anything requiring attention.

The visitor who has witnessed the several processes of manufacture of the cable, is naturally led to visit the *Agamemnon*, where, if he be properly introduced, he will meet with a most frank and courteous reception from her commander, Mr. Noddall, who seems as much devoted to the success of the electric cable as if it formed part of the naval exploits of his nation. Having arrived on board this noble vessel, the spectator of yesterday beheld the cable being drawn, by means of a donkey engine, upon the upper deck at the rate of fifty-four miles a day, night forming no interruption. An indicator, by means of two dial plates, announces the number of miles and fathoms of cable as it comes on board. On descending to the main deck one finds an engine of 24-horse power, with the necessary machinery to recover the cable in case of necessity, though sanguine hopes are entertained that its services will not be needed; and on one side of this same deck is a long range of offices, constructed for the use of Dr. Whitehouse, the electrician, and his staff, which will proceed on the voyage.

Lower down, in the vessel's capacious hold, might be seen so much of the electric cable as is on board, the coils already extending to a depth of seven feet. Its receptacle is a portion of the hold, forming in the lower part nearly an ellipse, comprising about forty-five feet square. As already intimated, the total quantity of cable to be received, is 1,250 miles, and the weight of the cable is about one ton per mile [18 cwt.] It is expected that the whole of the cable will be on board by about the 24th instant, and that soon after the *Agamemnon* will be on her way to Cork, where she is to join the *Niagara*. The precise course then to be pursued as regards the paying out of the cable by the two vessels, must depend on wind and weather, and provision will doubtless be made for all the contingencies which a wise foresight and the concurrence of the most experienced heads can anticipate.

The operations at Greenwich are under the active superintendence of two of the greatest electricians of the day, Dr. Whitehouse, of this country, the chief electrician of the Atlantic Telegraph Company; and Professor Morse, [alluded to in our number for June], of the United States. These gentlemen are both doing all in their power to ensure success to the enterprise. They are in constant communication with each other, and their intercourse will no doubt be as beneficial as regards the advancement of telegraphing in general as it is imperatively necessary to meet the new and extraordinary requirements which have sprung out of the pending experiments. In furtherance of this object Dr. Whitehouse has been for some time engaged in some interesting

investigations with regard to the time occupied by the transmission of electrical currents for immense distances in the ocean, and he has invented a scrutinizing agent which at once ascertains differences and places the results on record, so that they can be examined and compared and made the basis of future discoveries and improvements. The basis of this instrument is a ribbon of paper, chemically prepared, unrolled from a drum. An application of Professor Morse's printing machine, which, with the aid of local batteries, impresses marks on the ribbon, and a seconds pendulum, whose vibration transmits an electrical current in opposite directions along the wire at each beat or semi-beat. The effect of the process is that there are three parallel rows of marks impressed on the surface of the paper—the innermost representing the home signal, the next the distant signal, and the third the seconds. From the relative position of the marks may be learnt the velocity of the several currents and the interval between each, and the main object of the experiments, which are entirely novel, having arisen out of the special requirements of the Atlantic enterprise, is, of course, to diminish the period necessary for exchanging signals. In connexion with this point, it may be remarked that Dr. Whitehouse has actually devised a mode of weighing the force of electrical currents. Hitherto there has been no means whatever of ascertaining this: All that could be said of a particular current, so far as its force was concerned, was that it was slight or considerable, as the case might be; by means of this invention, a current, after it has travelled a thousand miles, may be weighed with the utmost nicety, an achievement which can hardly fail to be attended with the most important consequences in connexion with the extension of submarine communication.

The *Niagara*, which vessel is receiving her half of the cable in the Mersey, is a screw steamer of 5,200 tons, pierced for twelve 11-inch guns, belonging to the United States Navy, and is under the command of Capt. Hudson, an officer of considerable experience, having taken part in the Pacific Exploring Expedition. The *Niagara* is 345 feet in length, by 56 feet beam, with engines of 1,000 horse-power. Her screw is a Griffith's propeller. She is anchored in the Mersey, to take on board the cable, her great breadth having prevented her from being docked at Birkenhead. The inner gates of the dock at Birkenhead would have been quite large enough; but, unfortunately, the outer gates, which are 20 feet less than the inner, are only 50 feet wide. In order to make room for the cable the forehold of the *Niagara* has been cleared of the chain lockers, coal-bunkers, and tanks, and fitted with a level floor over the kelson, the beams having each been trussed with double stays, to compensate for the removal of the stanchions. Part of the cable is also being stowed in a space which has been cleared out on the main deck, abaft the engine-room, by displacing some of the officers' berths and encroaching on the ward-room. Three smaller vessels, of 500 tons each, the *Wallace*, the *Ellen*, and the *Perthshire*, convey the coils from the works of Messrs. Newall & Co., at Birkenhead, to the frigate in the Sloyne. The decks on which the cable rests have been covered with sheet lead to prevent the tar,

which accumulates at the bottom of the coil, from soaking through and saturating the timbers. The weight of the portion on board the *Niagara* will be about 1,200 tons.

The coiling on board is under the superintendence of Mr. Woodhouse, C.E., who took part in laying down the Varna and Balaclava telegraph, and this gentleman will accompany Mr. C. Bright, (who is the engineer-in-chief to the company, and was one of the original projectors of the submarine line across the Atlantic,) in the *Niagara*, to assist in laying down the half of the cable from the middle of the Atlantic to the American shore. These two gentlemen will have to take alternate watch in the *Niagara* of the paying out of the cable during the progress of the work: and Mr. Canning, who laid the line across the Gulf of St. Lawrence last year,* with Mr. Webb, who has been engaged for some years in laying down and raising the cables between Orfordness and the Hague, will take the same charge on board the *Agamemnon*. The machinery for paying out the cable has been made with great promptitude by Messrs. C. De Bergue & Co., of Manchester.

The two vessels, the *Agamemnon* and the *Niagara*, it is said, are to sail about the 25th inst., and are to be joined by H.M.S. *Leopard*, and the U.S. frigate *Susquehana*. These are paddle-wheel steamers of considerable power, and are intended to pilot and assist the other vessels when necessary. The four steamers are to rendezvous in Cork harbour, and will probably sail together from thence about the 1st of August. Their first destination will be about lat. 52° N., and long. 32½° W., or the middle of the arc of the great circle between Valentia Harbour and Trinity Bay.

Having waited there for favourable weather, should the elements not be propitious to the design on their arrival, a splice will be effected between the half of the telegraphic cable on board the *Agamemnon* and the half on board the *Niagara*, and they will part company,—the *Niagara* and *Susquehana* proceeding westward for Trinity Bay, Newfoundland, and the *Agamemnon* and *Leopard* returning eastward for Valentia Harbour on the coast of Ireland. The arc of the circle thus indicated is 1,834 miles in length, so that could each vessel steer an exact course to its destination, not subject to any errors, each would have to pay out 917 miles of cable; but as that is impossible, each vessel has been supplied with a surplus length of about 300 miles, to meet all emergencies. Supposing that each vessel should be able to pay out the cable at the rate of five knots per hour, or 120 per day,† it will thus be seen that the operation of dropping the great international link between this country and the United States will have been completed in eight days from the time of the splice is effected in mid-ocean and the vessels part company.

The outer coating of the greater part of the cable consists of a coil

* An account of which will be found in our number for June.

† It was done at the rate of six miles an hour in the St. Lawrence.

of eighteen strands of seven-thread iron wire, as a protection to the gutta percha core, containing the telegraphic wires, from friction or injury until it has been safely deposited on the bed of the deep Atlantic. But those portions of the cable which will have to be joined when the vessels part company, may possibly be subjected to an extra strain as the first unbroken link of it sinks between the two vessels to find its ultimate resting place; and to meet this possible contingency, ten miles length of this central portion of the cable has been protected with a covering of eighteen steel, instead of iron, wires, and is supposed to be capable of sustaining a strain of twelve tons.

The machinery made by Messrs. De Bergue and Co. includes paying-out sheaves or drums of five feet in diameter, having grooves corresponding to the thickness of the cable, with a friction drum attached to them revolving three times as fast as they do, and with breakage power to check or retard the motion of the sheaves at pleasure. From the hold of each ship the cable, passing over four of these sheaves to a few feet above the poop deck, will be dropped into the sea over a fifth sheave, placed above the stern. The exact amount of strain will be constantly indicated by an instrument for the purpose under the eye of the breaksman. At the sides of the vessel will hang down into the water electrical logs, principally due to the ingenuity of Mr. Charles Bright, the Atlantic company's chief engineer. These immersed logs having vanes and wheels revolving at a rate proportioned to the passage of the ship through the water, and making an electric circuit which is broken at each revolution. An electric wire, from the log to the deck, records there every revolution of the log, and consequently the exact speed of the ship.

It must not be supposed when the ships part company that communication will be lost between those on board the vessels. The electricians have each hold of their ends of the cable, and will interchange signals constantly, so that each vessel will be master of the other's fate, and of every incident that may help or retard the progress of submersion, unless some unfortunate emergency should snap the link. When the ships are lost to view of each other, the inter-oceanic current of electricity will give instant record of all that passes, until the lengthening line of cable has been run out from shore to shore. A bell on board each vessel will sound every second as each portion of the cable is payed out, and its silence will probably be the first indication of any mishap arising from friction or over-tension of the cable, and the vessels will have apparatus on board, so that in any such emergencies they can be backed, the cable recoiled until the faulty piece is found, when a piece will be cut out and the perfect portions reunited with as little delay as possible. In case of stormy weather, apparatus has been provided to allow for any extraordinary strain that may occur, and, if necessary, for cutting the cable without letting the outer end of it slip to the bottom of the ocean, whence it might never be recovered. In such an emergency there are large reels of auxiliary cable of great strength, which could be attached to the end; and these

auxiliary cables can be suspended from huge float-shaped buoys on the surface of the water, capable of resisting a very considerable strain, till all danger has passed.

The month of August has been chosen for the submersion of the cable as likely to afford the best conditions for the enterprise in regard to weather. The three great obstacles most unfavourable to such a work are fogs, floating ice, and storms. There is the greatest freedom from fogs in winter, from storms in June, and from ice in August, and on consulting Lieut. Maury, from the 20th of July to the 12th of August has been fixed on as the most favourable period for the undertaking. It may therefore be confidently anticipated that the result of this great enterprise, to which every one must heartily wish complete success, will be known to the world by about the 16th of next month, or possibly at an earlier date. The spirit with which Lancashire entered into the project which is being so rapidly put into execution is indicated in the fact that £150,000 of the capital has been subscribed in that county.

We understand that the soundings obtained by H.M. steamer *Cyclops*, which has been engaged in checking for the Atlantic Telegraph Company the soundings taken by the U.S. steamer *Arctic*, are very satisfactory, bottom having been found all the way across the Atlantic, and for the greater part of the distance composed of fine sand and small shells: near this coast small pebbles were found mixed with the sand. The greatest depth found was about $2\frac{7}{8}$ miles. Lieut. Dayman had some intention of looking into Trinity Bay, but we understand he is expected in Queenstown by a certain date, and is fearful of losing too much time by making the trip thither.—*Daily News.*

[In our June number we stated that some doubts had been thrown on the correctness of the American soundings on account of the rate of descent of the lead not having been noted. We are glad to find that our own confidence in them is thus confirmed.—Ed.]

New Books.

Summer Tours in Central Europe, 1855-6,—*France and the Pyrennees, Normandy and Brittany. By John Barrow Esq.* London: Dalton, Cockspur Street.

Mr. Barrow is one of those few persons who can travel not only for their own personal advantage but for that of their friends. He sees, and notes down what he sees, giving them in few words not only the benefit of his experience in that way, but also both the time and expense of doing so,—and, indeed how to set about adopting any one of his routes. We shall here avail ourselves of his glance at Cherbourg as it is in the little work before us.

Finding the *Hotel de l'Europe* full, which being situated on the quay of the

Basin du Commerce, is the most attractive, we got rooms at the *Hotel du Commerce*, in one of the principal streets of the town. It was not many minutes before I found myself standing on the Quai Napoleon, facing the great roadstead for men-of-war, said to be capable of containing a fleet of 30 sail of the line, besides frigates and smaller vessels, and viewing with deep interest the magnificent breakwater, which extended in front of me, proudly over which, with a strong breeze blowing from the Northward, the waves were making a clean sweep, rising considerably above it, and falling in a succession of jets d'eau into the harbour, along the whole line of the breakwater, or as it is called "la Digue," with much grandeur. The total length of this gigantic breakwater is 12,363 feet, upwards of two miles and a quarter: it is 30 feet wide on its summit, and rises ten feet above high water mark in one uniform surface of beautifully finished masonry, the lower part under water being rubble with a wide spreading base of upwards of 300 feet. With the exception of one line of battle ship, with her top gallant masts down, which was lying pretty close under the breakwater, two steam vessels, four or five other ships, and a few fishing boats, there was no other shipping to be seen from where I was now standing, a point of view embracing a great extent, perhaps about two thirds, but not the whole of the entire length of the breakwater. There may probably be other vessels lying in the little roadstead off the dockyard.

The same remarks, as regards the paucity of shipping, applies to the basin used for merchant shipping which is quite apart from the naval arsenal lying to the Eastward of it, and is of no great extent, probably capable of accommodating between 200 and 300 vessels. As a commercial port Cherbourg has indeed but little trade. The imports are various, and supply the district of La Manche, but the chief export is said to be butter and eggs. The fisheries are carried on in small boats and occupy 300 or 400 men and about 90 vessels. To the right is a small sandy bay, which is used for bathing.

There is an establishment des Bains-de-Mer, a few bathing machines on the beach, but no row of houses, which I should think would rise there before long. Beyond these is situated the Fort de Flamand, built on the Flamand Rocks, at the Eastern extremity of the great Bay of Cherbourg, which is nearly four miles in extent. To the left lies the dockyard, while in front is seen the breakwater with its central fort and lighthouse, with another fort on its Eastern extremity. To the right or Eastward of the breakwater lies the Ile Pelée with a very strong fort. This fort was once called Fort Royal, afterwards Fort Nationale, and is now known as Fort Impériale. It has also a lighthouse upon it, and to the right of that again, on the main land the Fort de Flamand is seen, as above mentioned. This was the first glimpse I obtained of the magnificent harbour of Cherbourg, but from this point of view the *entire* length of the breakwater with its several forts is not seen, as I have stated, neither is the Fort de Querqueville which stands at the extremity of a point of land which forms the Western extremity of Cherbourg Bay, similar in position to the Fort de Flamand at the Eastern extremity, and has a lighthouse upon it. On the breakwater there are now four strong forts, not quite finished, and there will eventually be five. The original intention appears to have been to have had three, one at each end and one in the centre, called Fort Central, but a fourth is now being constructed. The fort at the farthest end to the Westward, with the Fort Querqueville guards the Western passage. The fifth fort will of course be placed equidistant from the centre fort, and that at the farther end to the Eastward, which latter, with Fort Napoleon, will guard the Eastern passage.

August 19th and 20th were passed at Cherbourg, carefully visiting the dockyard, through every part of which we were obligingly permitted to pass without any difficulty being made, and as leisurely as we pleased. It is im-

possible to imagine anything better arranged, and the contrast to some of our own, is striking. This is of course the natural, and, perhaps, unavoidable result of patchwork. Land has been purchased and added, from time to time, to our dockyards, here a bit and there a bit, and the buildings and storehouses are not so conveniently arranged as they might have been. At Cherbourg any such patchwork would have been unpardonable, consequently all is there admirably planned, and everything in its right place.

There are two large basins, at the end of one of which are four building slips for frigates, with noble walls and roofs. Inner basins of enormous size are now being excavated in the solid rock, behind those already constructed, with which they will communicate. Into the large basins four beautifully constructed dry docks will open. These are nearly completed, and there will be two other docks, not yet commenced. There will also be slips for building line of battle ships.

The vastness of these works is astonishing, and not less so the energy and activity displayed in carrying them out. When all is completed, there will be nothing in the world to equal Cherbourg as a naval arsenal. The greater part of the works are faced with granite, and the masonry is beautifully finished. The dockyard is entirely surrounded by a wall, and with strong fortifications, with a large intervening space. At the back of the dockyard, between the outer wall and fortifications, are some well constructed buildings, one of which is a large barrack for soldiers, with an excellent parade ground.

We also visited the Fort Querqueville, and were permitted to pass through it. It is surrounded with fortified outworks and a moat. On entering the fort is a row of buildings for residences, and behind these the barracks, which would accommodate, I think, about 1,200 men. They are built at an obtuse angle, with two rows of loop holes for muskets, splaying out considerably and at first giving the impression that they were pierced for cannon. There are 33 of these on either side the centre. On ascending the staircase, in the interior, two beautiful corridors, extend right and left the whole range of the building.

Passing under the centre archway of the barracks, we found ourselves on a semicircular plateau, on which, under arches, are ranged the cannon. There are 48 of these arches but only 44 guns at present mounted. Ascending a short ladder placed us on the broad sloping parapet of Fort Querqueville facing the sea. On this parapet guns might possibly be placed, but the men entirely exposed. The sea washes over it, and I doubt if the guns under the arches could be effectually served in a stiff breeze or gale, as I found the platform still very wet from the spray of yesterday. These arches are quite open, but might be boarded up if necessary, but the sea would wash in at the embrasures and greatly incommode the men, if the wind was from the Northward with any send of the sea. The same remark applies to all the forts on the breakwater.

Retracing our steps and proceeding to the right of the fort, there are 12 guns mounted on platforms facing the sea. and on the left 5. There are also on each of these platforms a mortar. The number of guns particularly on the left might be increased.

On the slope of the hill below the road. and close to it, in St. Anne's Bay, between Cherbourg and Querqueville, are some 30 or 40 cannon not yet mounted, and recently placed there, along the shore of the bay.

Visited Fort des Flamands, which is built on a rock entirely surrounded by the sea, but connected with the main land by means of a causeway, which also helps to form one side of an artificial harbour, in which small vessels may take shelter. This fort recently constructed is considerably smaller than that of Querqueville, but appeared to me to be stronger built, a master piece of masonry, and admirably adapted to defend the passage between Isle Pelée and

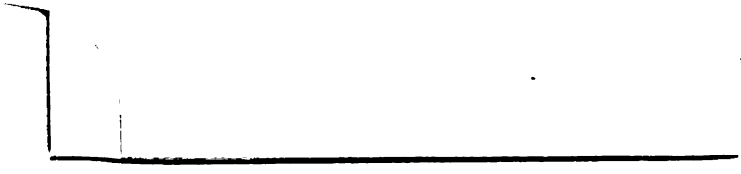
the main land, which is navigable for gunboats or small vessels. It mounts two rows of guns, 70 in all. The lower range, which is all bomb proof and entirely enclosed, is pierced for 36 cannons. There are at present only about a dozen mounted. The upper tier, which are all mounted, are on iron slides of a new construction, easily worked by few men. The fort is approached by a drawbridge from the causeway, and is capable of accommodating from 200 to 300 men, but not more. No expense has been spared upon this fort, which though small is a splendid work. We also visited Fort du Homet, once called Fort d'Artois, which stands on a rock surrounded by the tide at high water close to the main land, and at the further or Western extremity of the dock-yard. It is about midway between Fort des Flamands and Fort Querqueville. Fort du Homer is also a circular fort of immense strength, built of solid blocks of granite, on the plans of Vauban, and I should think capable of resisting any conceivable amount of shot and shells, and proof against all the Lancaster guns that could be brought to bear upon it. It mounts in all 76 guns, I believe, including 18 which I counted on the upper platform or parapet. It has two rows of casements and the interior of the fort has barracks for about 300 or 400 men, and large powder magazines.

Of the Hill Forts surrounding the town, I did not think so much as some people do. They appear to me to be *comparatively* insignificant. The fort on the Rock du Roule appears to be pierced for only six guns, but I did not go up to it.

Fort Octaville is an old fort, or redoubt, which a handful of men would easily take. It is a fort in name only, indeed the land defences appear to me scarcely worth all that has been said about them. They strike me as poor indeed, compared to the forts I have been accustomed to see in Austria.

HOSPITAL FOR DISABLED MERCHANT SEAMEN.—At the meeting on the 17th of July in the Egyptian Hall, the Lord Mayor having adverted to the importance of the object in view, Lord Henry Cholmondeley read a statement from the Board of Management of the Shipwrecked Mariners' Society, going at some length into the subject, and recommending that there should be a hospital founded for five hundred men, and that a plan should be adopted for giving out-pensions as part of the institution. Capt. Hon. F. Maude, R.N., then moved a resolution in favour of the formation of such a hospital as was contemplated. The resolution was carried, and it was also agreed,—"That a building be raised on the banks of the Thames, within the port of London, to be called (with her Majesty's permission) 'The Royal Hospital for Worn-out and Disabled Merchant Seamen.' That the said building be prepared for the reception of 500 persons selected from the different grades of the mercantile marine, and that it be commenced as soon as there is a fair prospect of £50,000 being subscribed, and that a plan of out-pensions be grafted on the institution." Mr. W. Phillips moved the next resolution, to the effect that the meeting viewed with much satisfaction the donation of £5,000 from the corporation of the Shipwrecked Mariners' Society in aid of the movement for the foundation of the proposed hospital, and pledged itself to use its utmost endeavours to carry out so noble and important an object. The motion was seconded by Mr. Montagu Gore, and carried. Other resolutions of a business character were agreed to, and thanks to the Lord Mayor concluded the proceedings.

[We cordially wish success to this proposed institution, and will give it all the support in our power.]



THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

SEPTEMBER, 1857.

On the Free Ventilation of Ships.—*By Capt. H. Toynbee, F.R.A.S.*

The defective ventilation of ships has long attracted my notice, and I have observed always that those parts left open to air the ship's timbers, are such sources of annoyance to passengers and troops by admitting steam and cockroaches among them from the cargo, that they have begged the commanders to have them closed. It is, therefore, my object now to show how ships' lower decks may be well ventilated and kept free from these annoyances; whilst at the same time I shall endeavour to point out a method of ventilating the planks and timbers of a ship more completely than by any other that has been yet followed. My plan has, besides, the recommendation of persons who are perfectly masters of the art of ship-building, who not only see no objection to it, but who already think of adopting it.

Commencing with the ventilation of the lower deck, I shall suppose that those interested in this important subject are well acquainted with the parts of a ship to which I allude, so that sketches will hardly be requisite. In most ships the beams which support the upper deck rest upon a shelf, which runs fore and aft the ship: from this shelf to the upper deck the ship's timbers are left exposed, to allow fresh air to get to them and the foul air to escape, the space being filled in with perforated zinc or wood with carved holes to allow a free current of air, thus giving the part a more finished appearance than if the timbers were exposed to view. It is also generally known that there is a space left between the timbers, which in most cases gives a clear way up to the covering-board, so that if the covering-board were removed, there would be a free course for the air to pass up or down between the timbers. Now, although the covering-board must be a fixture for the purpose of keeping out wa-

ter, still it is of so little importance to the actual strength, that ship-builders (at any rate Messrs. T. and W. Smith) allow holes to be cut in it where space between the timbers is found, by which means they greatly improve the ventilation of their ships. Over these holes they let in brass slides, which can be opened or shut at pleasure. My object is to improve on this plan, by having two sets of these ventilators, one set for the human beings on board; the other for the cargo and timbers in the ship. I will first consider the human beings, as the most important subject for attention.

To prevent the annoyance of cargo-steam from the hold coming into passenger's cabins and the troop deck, which sometimes turns the paint-work a lead colour,* I propose to fill up the space between the shelf on which the upper-deck-beams rest and the upper deck itself, with a stout piece of plank, and chintse or caulk it all round the ship, so as to make it air-tight; thus the communication with the hold would be cut off from the passengers' cabins, and from the whole lower deck, excepting by the lower hatchways, so that they would thus be in a better state than before. As the hatches, however, are frequently covered and the ports closed, I would further ventilate the lower-deck-cabins and the lower deck by having a leaden pipe or one of any other metal, which should be just large enough to pass up between the timbers. One end of it should pass through the covering-board and be opened and shut by a brass slide, or even be carried higher, terminating with a small funnel; and the other end should open into a lower-deck-cabin or on the troops' deck, and passing through the filling-in plank which I have just proposed, should be put between the shelf and the upper deck, this end of the pipe should be flanged and nailed down to the filling-in plank, whilst the other end is secured in the same way to the covering-board.

Now the advantage of this would be, that the communication with the hold would be entirely cut off, and that the lower deck would have a series of funnels to carry off the warm air to the open air. While the hatchways and lower-deck-ports are open, there would not be much advantage, as the lower deck is then very cool; yet even then the warm air that had risen above the ports would go up the funnels. But when the lower-deck-ports are shut, which is always the case at night, the air which comes down the hatchways, after receiving the respirations of the passengers of the lower deck, would pass up these funnels, instead of having to be breathed a second time on its way over the men's hammocks back to the hatchways before it can escape.

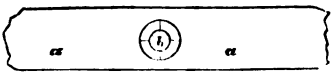
Again, supposing that it is requisite to batten down a ship's hatches, which is often the case, several of these funnels might still be kept open, for it must be remembered that some parts of the covering-boards are on the poop and forecastle, whilst in flush-decked ships small funnels might be added; and during my twenty-four years'

* The reader will probably remember the allusion to the effects of this foul air in the case of sugar ships to which our East India Officers are subject and which was amusingly related by a Madras Officer in our number for December, 1854.—Ed.

experience at sea, I never saw such a gale that some might not be open. They would allow the air to go down those on the weather side and up those on the lee side, so that suffocation would be impossible. My impression is that this is all that is wanting to a lower deck to make its cabins as comfortable as the poop or the upper-deck-cabins of a flush-decked ship.

So much am I convinced of the advantages of this method, that, considering how seldom ports or scuttles in the ship's side can be kept open, (especially at night,) I should prefer these funnels to ports if allowed a choice between the two. Messrs. T. & W. Smith, at my request, fitted a funnel in the forecastle of the *Marlborough*, just abaft the foremast; and I have seen the warm foul air from below carry up half a newspaper with great force when all the crew were asleep. Now, had that funnel not been there, this warm foul air must have found its way back to the scuttle, for the ports were shut. I believe that it is usual for men-of-war to be filled up between their timbers; but suppose that spaces might be left for these pipes to go from the lower deck to the covering-board. I would also cut off the communication of the upper-deck-cabins with the hold.

I feel sure that shipbuilders on reading this will think that so far I have only stopped (to a great extent) the *breathing* of the ship, by which means alone the timbers can be kept healthy. I must confess to have felt with them on this point, especially when seeing an otherwise first-rate ship, in which I was much interested, receiving a new stem, the old one being rotten from mere want of fresh air. It has always struck me that by the present construction many parts of a ship are so air-tight that they cannot get the necessary ventilation. To remedy this, I propose, that before each plank is bolted to the timbers a small longitudinal groove (or two if requisite) should be cut along its face where it meets the face of the timber, by which groove the air would have a free course fore and aft along both the inner and outer skin of the ship without in any way weakening the timber. To give the air the means of escaping on deck, I would also cut other holes in the covering-board, so that it should escape between the timbers: these holes with brass slides to them are fitted in many of Messrs. T. & W. Smith's ships. If too many holes in the covering-board were considered objectionable, I would give the air of the hold the following means of escape:—Let the pipes that are to be brought from the lower deck to the covering-board be an inch or so smaller in diameter than the hole in the covering-board, and the following plan may be adopted.



Here *a* represents the upper surface of the covering-board, and the smaller circle *b* (the upper edge of the pipe) is secured to the large circle or hole in the covering-board by four braces, leaving the space between the two circles for the air from the hold to escape: I should prefer separate holes if possible, and am told by one of our best naval architects that this system would in no way weaken a ship. The numerous small grooves might be compared to the veins and

arteries in animals; the arteries being considered to be those on the weather side, admitting the good air all over the ship; and the veins those on the lee side, carrying away the bad air to the upper deck to be made good again.

My impression is that the ship's timbers, &c., would be much better and more simply ventilated by cutting grooves in the timbers instead of the planks, say about two feet apart, taking care that the middle of a plank came over a groove, so that the caulking would not fill it up; and I should be inclined to continue the grooves through the stem by a very small auger hole, so that there would be a complete circulation of air round the ship longitudinally, as well as from the limbers to the covering board. Some, however, seem to think that grooving the planks would weaken a ship less.

I hope that this plan would go far also to render a ship uncomfortable for cockroaches, &c., as they always contrive to get into some part where there is no ventilation.

Having spent many years of my life on a ship's lower deck, and breathed an atmosphere which turned the buttons of my coat lead colour; having also seen invalid soldiers suffer very much from the steam of cargoes and bad air, I speak feelingly when I say that I hope this principle will be generally introduced and have the desired effect of contributing to the comfort of those who inhabit lower decks for the future.

Since writing the above I have seen one of our finest merchant ships, which is about to carry troops to India, fitted with large funnels from the lower to the upper deck, which are nearly in midships, *i. e.*, very little nearer the ship's sides than the hatchways, and just in the gangway along her main deck. Now, although I allow that these assist the ventilation of that ship a little; still, how much better and how much more sightly it would be for ventilation to be quite in the sides as I have proposed. For in the present case, where there are only hatchways and the last named funnels, the bad air has to return nearly to the middle of the ship before it can escape.

[A mode of ventilation for ships, combining the same advantages of obtaining fresh air between the timbers as well as between decks, was proposed by the late Mr. John Sheringham, of Kensington, with the addition of a valve to regulate the supply.—ED.]

DEEP SOUNDINGS BETWEEN ALEXANDRIA AND RHODES.—*Extract of a Letter from Commander T. Mansell of H.M.S. Tartarus.*

Smyrna, 29th May, 1857.

I enclose a tabulated account of our soundings from Alexandria across to Rhodes, with the time occupied by the descent of each weight. On leaving Alexandria I used the American apparatus for the first five soundings, but in no instance did it succeed. The weight was hauled up and found to have been completely buried in very soft

brownish mud; the softness of the bottom may perhaps account for the weight not detaching. I then tried Bonnici's,* which I had altered slightly by placing weights at the end of each arm, to ensure their falling. It succeeded admirably, and never hung in the slightest degree. The only drawback (which I hope to overcome) is the small quantity of the bottom brought up. The 68lbs. shot answered perfectly, and from its size ensured being detached the moment it reached the bottom. We could not have had finer weather nor more satisfactory results; each sounding was right up and down. The sea was so calm the ship was kept immediately over the line with just a turn of the engine.

I first used mackerel line and a 40lb. weight; but as the weight did not detach we carried it away at 1,000 fathoms. At the previous sounding, which was 850 fathoms, we actually brought up the weight, which had been completely buried in soft slimy mud. The rest of the soundings were had with log line; but I found that in the great depths it could not be used above three or four times, the line becoming so stretched that its strength was entirely destroyed.

With Bonnici's apparatus I placed a conical piece of lead, hollowed out and jagged inside, armed with grease for bringing up the bottom; but it did not succeed so well as I could have wished—the bottom being washed off in coming up.

I enclose drawings of the apparatus used,† as also tracings of line of soundings.‡

May 14th, 1857.—From Alexandria for line of deep sea soundings to west end of the island of Rhodes.

From the Corvette Pass, Alexandria, course N.b.W.

A.M. Time. h.	m.	Distance. Miles.	Depth. Fms.	Weight. lbs.	Nature of Bottom.	General Remarks.	
10	45 a.m.	10	110 fms.	28	sand & clay	did not detach.	
1	17	20	200	28	sand & coral	do.	American
3	45	30	450	28	fine dark mud	do.	American
8	49	50	850	32	yellow mud	do.	American
2	40	70	1000	40	do.	do.	American
7	58	90	1300	40	do.	detached easily.	
2	23	110	1550	68	do.	do.	Bonnici.
9	13	130	1600	68	do.	do.	Bonnici.
5	14	150	1600	68	do.	do.	Bonnici.
1	38	170	1500	68	do.	do.	Bonnici.
7	38	200	1300	68	do.	do.	Bonnici.

Strong N.W. breeze with a heavy cross sea; put the ship under try-sails head to the northward.

May 22nd.—From the west end of Rhodes, wind light N.W., slight swell.

6	20	10	500	68	yellow mud	detached easily.	
0	12	30	920	68	do.	do.	Bonici.
5	25	55	1400	68	do.	do.	Bonici.
11	30	75	1350	68	do.	do.	Bonici.

* A description of it will be found in our volume for 1856, p. 157.—Ed.

† See *Naut. Mag.* for March, 1856, p. 157.

‡ See chart in our last number.

Altered course for the west end of Rhodes. Wind light from the N.W., with slight swell.

The following, selected from the first of the above sets, show the interval of descent for every 100 fathoms.

American apparatus; 32lb. shot; 50 miles N.b.W. of Alexandria.

Depth, fms.	h	m	s	Int. m	s
Let go at	8	49	50		
100	8	50	48	0	58
200	8	51	50	1	2
300	8	53	48	1	58
400	8	56	15	2	27
500	8	59	25	3	10
600	9	2	25	3	0
700	9	5	45	3	20
800	9	8	50	3	5
850	9	12	30	3	40

Did not detach.

American apparatus; 70 miles N.b.W. of Alexandria.

Depth, fms.	h	m	s	Int. m	s
Let go at	2	40	0		
100	2	43	30	3	30
200	2	47	40	4	10
300	2	50	0	2	20
400	2	52	30	2	30
500	2	55	4	2	34
600	2	58	35	3	31
700	3	1	35	3	0
800	3	4	30	2	55
900	3	6	50	2	20
1000	3	11	25	4	35

Did not detach.

Bonnici's apparatus; 68lb. shot; log line; 110 miles N.b.W. of Alexandria.

Depth, fms.	h	m	s	Int. m	s
Let go at	2	23	25		
100	2	24	37	1	12
200	2	26	27	1	50
300	2	28	0	1	33
400	2	29	50	1	50
500	2	32	12	2	22
600	2	34	37	2	25
700	2	37	7	2	30
800	2	39	50	2	43
900	2	42	32	2	42
1000	2	45	27	2	55
1100	2	48	28	3	1
1200	2	51	38	3	10
1300	2	54	37	2	59
1400	2	59	5	4	28
1500	3	4	40	5	35

Detached easily. Yellow mud.

Bonnici's apparatus; log line; 130 miles N.b.W. of Alexandria; 68lb. shot.

Depth, fms.	h	m	s	Int. m	s
Let go at	9	30	0		
100	9	31	25	1	25
200	9	32	50	1	25
300	9	34	30	1	40
400	9	36	20	1	50
500	9	38	20	2	0
600	9	40	45	2	25
700	9	43	12	2	27
800	9	46	10	2	58
900	9	50	55	4	45
1000	9	54	5	3	10
1100	9	57	5	3	0
1200	9	59	50	2	45
1300	10	3	0	3	10
1400	10	6	40	3	40
1500	10	10	40	4	0
1600	10	13	20	2	40

Detached easily. Yellow mud.

On my return from Smyrna to Alexandria I propose, weather permitting, to sound across to Megalo Kastron on the north side of Candia, and from Sudsuro, on the south side, to Alexandria.

To Captain Washington, R.N., F.R.S.
Hydrographer.

Privateering in the West Indies,—*During the War.*

(Continued from page 419.)

In March of the same year, we discovered a privateer under the land of Cape St. Nicholas, (Nicolo Mole,) on the West side of St. Domingo, and immediately chased her.

During the night we got sufficiently near to fire several shots at her, and were congratulating ourselves on our unusual good luck—her capture appearing certain—when, most provokingly, the wind died almost away, and the arch rogue very soon evaded us by the use of his sweeps; that is to say, swept in under the shadow of the land, and out of our sight. But we were not altogether dispirited, as it was thought impossible for him, in the position where our hunting had placed him, to steal out without being perceived by our watchful eyes. There are cases where an *over confidence* defeats itself: it has as often lost a prize as placed a ship on shore. The next morning, to our great surprise, we saw the cunning fellow at a long distance outside of us, when we had expected to find him hemmed in between the land and our ship! The shake of the head, and the dry laugh went round. These tokens may not be interpreted as complimentary to our little enemy—they meant no such thing. The truth is, we were laughing at ourselves, though we didn't exactly know it—but that was the fact—and Jacque Mathieu—for it was he who had tricked us—was at the very same moment enjoying his "giggle," without a doubt, as was his wont.

We could do little at the time, as it was nearly calm, and Jacque being in a good position to round the mole, did not think it at all necessary to fatigue his men at the sweeps. Our partial success—though I think more apparent than real—the evening before, had inspired us with vain thoughts; and the moment the sea breeze permitted, we made all sail in chase, and continued it for *thirty-six* hours, until we reached Cape François, when he fairly ran us out of sight!

In this chase there was a fine display of what can be performed by nerve and good seamanship. Our worthy young captain, now, unhappily, no longer among us, with the sterling qualities of a thorough seaman, possessing energy, activity, and intrepidity, in an eminent degree, conducted the duty throughout the long chase. After rounding the mole, we got the wind from the westward, a mutation at that time considered remarkable, and in following the privateer, we found ourselves close in with the western part of the island of Tortuga, which lies a few miles from the main shore of St. Domingo, having a navigable channel between. The little fugitive barely weathered it; but having done so, went off with a flowing sheet. Her object,—that of drawing us so much into the bight as to oblige us to make a tack—had nearly been accomplished. Up to the last moment it was doubtful whether the frigate would weather the point, or not. To take the channel between the island and the main, would not do, as the privateer, on seeing this, would haul her wind, and leave us, on emerging

from the eastern extreme of the channel, dead to leeward as the wind then was.

The master thought the old ship would not accomplish the feat of weathering the point: to try it, however, the captain was determined: "She must do it"—was often repeated: after which all was silent expectation until within a biscuit's throw of the bold projection—— when, promptly the helm was put down, and in a few seconds after "shaking her clothes in the wind," and ungallantly showing her stern to the rocks, the "Old Lady" was again in the wake of the astonished Frenchman, parallel with the shore; for the moment she shot past the point the helm was reversed, and this clever attempt succeeded without going about.

The night set in: the moon, with her silvery light, was up behind the hills aback of Cape François; and the ship lay becalmed in the shadow of that huge promontory, which, in its contour, at a certain point of view, bears some resemblance to the celebrated rock of Gibraltar; but its shape varies remarkably at almost every point of bearing. From one position, it appears a huge mass of rocky land, with several conical peaks; at another, it forms a saddle mount; and, again altering the line of view, it looks lengthened out like a vast lion reposing.

The grey morning had scarcely dawned upon us, ere the mast-head man reported, with a cheerful voice,—"Sail, oh!" and in a moment after, another, and another; and by the time the horizon became clearly exposed to view, we found no less than five privateers surrounding the ship, like so many sharks expecting their prey. These vigilant fellows had, doubtless, got a glimpse of our ship at the close of the last day, from their anchorage at Monte Christo, and believing her to be a merchantman, had sallied forth during the night, in expectation of pouncing upon a good prize at day break. They were, however, very soon undeceived, and began to exert all their nautical skill in manœuvring for their individual safety.

These wily and enterprising rovers knew very well the advantage they possessed in numbers. Not that they were mad enough to entertain any thought of simultaneously attacking the frigate; they were too well skilled in the art of warfare for that. But by taking different courses their enemy would be in some measure perplexed—she would be, like the donkey between two bundles of hay,—wavering which to commence with, and every minute lost by the frigate, was a gain to each and all of them: however, we chased the nearest, to begin with.

It was really a most beautiful sight, and to those on board of the frigate interesting and exciting in no common degree. But the bad sailing of the ship gave us little hope of success. Nevertheless, as soon as the sea breeze afforded the opportunity, we set all sail possible in chase, and soon commenced firing from the main-deck guns on those that were within reach. Our old friend Jacque, who had led us the "dance" up thus far, like ourselves, had been becalmed, farther out from the land, was among the number, though we were too busy to recognize him. By trimming, and suspending the chests and shot-

lockers, and sending part of the crew to bed, in order to make the ship the more lively—though it is a question whether the "suspended animation" would contribute to that end—her sailing was "wonderfully improved"—she tacked with "unusual celerity," and afforded us occasionally some gleams of hope. I venture these words, because it was the unanimous *opinion* of all that it was as I have said. But I declare I would not *swear* to the particular fact, because I know well enough, under such exciting circumstances, that which we *wish*, we *believe* stoutly happens, whether it is apparent *de facto*, or bias and fancy deludes us into the construction.

In this state of anxious uncertainty we continued until noon, when the whole of the men were ordered down, for a few minutes, to their dinner. At this time we had one of the privateers on our lee-bow, on the same tack, who, in the most prompt and skilful manner, put about with the design of trying for the weather-gage by crossing our hawse! It was a bold and hazardous attempt, but it was the only chance he had of escape (the land being ahead of us)—and he succeeded!

The intrepidity of the French commander on this occasion can never be obliterated from my memory—it was delightful! And the feat astonished us—even us, old stagers! He sent all his men below, and took the helm himself. There he stood, chewing his quid, like a hero and a veteran warrior, unmoved amidst the showers of shot that fell around him, ripping up the decks of his little barque, and tearing his sails into ribbons:—there stood Jacque Mathieu himself, alone and undismayed! "Well done, my old trump, we have 'e." "Have 'e? Wait a little bit." Steadily he approached, and so close under our bows, that some of his ropes *caught our flying jib-boom* and made it bend like a bow. That, incredible as it may appear, was a fact. The instant this temporary check ceased, she sprang, as it were, from us like a fleet shearwater, and was soon out of reach of our shot! the fore-castle guns (with grape) and a few marines blazing away at the little floating thing. I do not recollect that the captain gave orders not to aim at the veteran, but it is probable; yet it seems almost miraculous that he was not cut in pieces by the crowds of shots from our guns.

Jacque was in his glory. It was in hazardous and difficult situations that this clever and intrepid seaman shone most conspicuous; differing essentially in that point from the generality of his countrymen: the Jacks accounted for this by supposing that his mother was an English woman, and he, himself, a native of Brittany! A man of less nerve and presence of mind would not have attempted it; and the correctness of his eye and the soundness of his judgment may be here inferred from the success that attended his manœuvre.

His escape depended on the possibility of crossing to windward of the frigate without falling on board of her. He had a moment only to decide, and the boldness of his conception, and promptitude of action, carried him through all. And as he slid rapidly by, he waved his hat, accompanying the action with a loud and steadily delivered—"*Bon jour, Messieurs!*" This was most admirably performed; and

everybody laughed at the fellow's coolness, and admired his abilities, and turned their attention to the next nearest. Jacque was considered by his crew to have a "charmed life,"—and our Jacks after this essay began to be very much of the same opinion. I believe he was never taken, though some of his craft were.

The vessel which now engaged our attention, not daring to follow the example of the gallant Jacque, soon convinced us that her commander was not equal to the difficulty he was placed in. By bearing round away, as a dernier resort, and running up all his flying sails, he committed an error in judgment that cost him his vessel; although, as it was, he held us a tug until six o'clock in the evening, when we had the satisfaction of capturing a very beautiful vessel. She was, however, subsequently scuttled, and sank into the bosom of the deep, as we could not spare men, without weakening the ship's crew, to navigate her to Port Royal. Thus sacrificing, and very properly, as necessity pressed, individual profit for public good. This principle, however, may be carried too far. It might be regulated by better arrangements.

Resuming our station off Cape St. Nicholas, (the Mole as it is familiarly called,) we again fell in with a French schooner privateer, and chased her into the Bight of Leogane. As the night drew on, the cunning rover kept his vessel close to the shore, not only because he knew we could not follow him in the ship, but in the hope that we should loss sight of him in the shade of the land. But our night inverting-glasses were excellent, and the eyes at them well practised.*

At half past eight, the wind having died away, and perceiving that the chase had lowered her sails, the frigate's anchor was dropped under foot, and the boats manned and armed sent after her. The opportunity appeared so glorious to the young Mids, that their push-forward zeal knew no bounds,—I never knew a pack so elated. The feeling, whilst the uncertainty lasted, may be defined as something like delight mixed with anxious impatience. Happy fellows!—thrice happy days! who would wish to grow old and wise who could live on as cheerful and as happy as a Mid?

From a splashing in the water we found that the privateer was using her sweeps; this gave increased energy to the boats' crews, and they pulled away most lustily. The boats were under the command of our second lieutenant, Burt, "Job," as he was termed for his quiet disposition,—a gallant, and, in everything, a good officer, whose excellent qualities and faithful services have not been requited as they should have been. He remained in 1846 at the top of the list of Commanders—with the Greenwich out-pension as his reward,—when he should have been on or near to the Admirals' list—the goal to which all noble spirits in the executive line aspire.

* I have as a Mid been a *whole night* with the glass at the eye! Those who know the effort necessary to retain an inverted image in the field of a night telescope, will say I had enough of the spirit of Job in me to have stood that without rebelling! At daylight I could neither see nor stand. I was "done up!"

At nine, the sound of the sweeps were no longer heard. We had now no guide to direct us to the vessel's position, but pulled on as near as we could guess along the line of the shore; in a few minutes after, a strong scent of garlic and tobacco smoke warned us that we were near our enemy. It was so, for directly after, the indistinct appearance of her masts showed us exactly where she was; and a smart fire of musketry was immediately opened on her, which she spiritedly returned. At this moment there was not a breath of wind stirring; the schooner, which was long and low, lay motionless,—her sails down and her sweeps hauled in, in readiness to repel the boarders,—for that, indeed, they would have been better out; but better in to act when the land wind came off,—the fellows knew what they were about. All our party were confident of success. The boats approached, and were in the very act of hooking on under a tremendous fire of musketry and musketoons,—when, in an instant, the whole of the schooner's sails were spread, a cold air from the land filled them, and she glided away in a most astonishing manner, so much so, that something very like necromancy appeared to the Jacks to have produced it! The effect was singular: one would almost have sworn the thing was endowed with life! The shade of night added to the effect that sort of sublimity which darkness throws over objects and scenes in themselves unpossessed of that character, and which in broad daylight may be tame and commonplace.

The oars were got out as speedily as possible, and the men pulled with great spirit after the fugitive; at this time the frigate passed us under all sail, firing her guns in rapid succession, some of the balls from which made a grand clatter among the rocks on shore. The noble ship, as she dashed past our pigmy vessels, had something very grand and imposing about her as seen through the "dubious" light. Apparently, her size was greatly augmented; and the long white horizontal streak of her painted side, just distinguishable through the obscurity, glided past like a winged serpent darting through ether!

As we advanced towards the open sea, the breeze became fresh, and in a little time we lost sight of both the ship and the schooner, and as the cannonading had ceased, we were in doubt whether the chase had surrendered or escaped. On getting on board the frigate at midnight, we had the mortification to find that the skilful little craft had really disappeared, although, at one time, completely under the guns of the ship—it was thought that it was impossible she could escape; but as the wind freshened she drew away in a surprising manner, and at last was suddenly lost sight of. The frigate stood on for some time, but saw nothing more of her, though the horizon was carefully swept with the glasses. It was concluded, therefore, that she had gone down from the effect of our shot.

A nearer chance of capture never, perhaps, occurred. The boat I was in had fairly got alongside the schooner, and another boat was in the act of hooking on to the rudder at the moment I have described that she slid away from us, as it were, by magic! Our third Lieut., Hon. W. Pakenham; Lieutenant of Marines, John Humphries, and

several seamen, were wounded,—one, J. Howard, (afterwards a gunner,) was the coxswain of our boat, in which was the commanding officer. A day or two afterwards we learnt with some degree of surprise, if not with admiration, from an American, that he had spoken the privateer, almost in a sinking state, making her way towards Monte Cristo. The greater part of her deck was torn up by the 32-pounder shot from the frigate's quarter-deck guns, and many of her men were killed and wounded; but the spirit of the commander remained unsubdued. He could be no other than our old friend Jacque, —his bonne-fortune never failed him, and verily, as the Tars said, he had the "Old-boy's luck and his own."

The depredations committed on our commerce by the notorious privateer's-man, Capt. Love; his spirit of enterprise; his daring intrepidity, and many qualifications, forming altogether an extraordinary character, had created a sort of emulation among our naval officers for his capture: and all were on the *qui vive* to intercept him. But he, too, seemed to have a charmed life, for it was of no use to catch him,—neither bolts, bars, nor guards, could secure him,—in spite of these he vanished! The seamen made sure he had sold himself to the "d—." As he was considered to be a native of some part of Great Britain or Ireland, the Commander-in-Chief was determined, should he be taken, to send him to England for trial as a rebel.

Since the demoniack Teach, better known by his piratical name of "Blackbeard," and other sea-robbers figured in these seas, whose infamous exploits have been so well recorded, no rover had made himself more conspicuous than Capt. Love. He had been captured in the revolutionary war by H.M.S. *Thetis*, and sent home for trial in the *Proselyte* frigate; but effected his escape the same night that ship anchored in Plymouth Sound, and was not heard of until the renewal of hostilities, when he again appeared on the Jamaica station, enriching himself by the capture of our merchant vessels.

Capt. John Perkins, commanding the *Tartar* frigate, who was himself a very extraordinary character, accidentally took Capt. Love prisoner; but such was the insinuating address and persuasive manner, covering the most consummate dissimulation, of that wonderful rover that, to the astonishment of most persons, he cajoled the Captain of the *Tartar*, and got clear off. I do not now recollect exactly the circumstances of the event, but I think he obtained a boat for the purpose, as he made Capt. Perkins believe, of searching for some barrels of salted meat, among which, he said, the Spaniards had put a great quantity of doubloons, and buried in the sand, until a favourable opportunity offered for recovering them. His wish was granted. He went on shore in a small boat with three American seamen belonging to the recapture in which he had been found, and, as may be supposed, disappeared in the woods, and was believed to have perished. But he soon came to life again, creating his usual terror among the merchantmen.

I may, as an explanation of this apparently mysterious affair, state, that the vessel Love was found in, was an American, which had been

captured by his own privateer. He took charge of her himself to carry her into St. Jago, in Cuba; and passed himself off as her skipper; and, of course, his person was unknown to the commander of the English frigate, although I believe there was a suspicion that he was not the character he represented himself to be. It was thought very remarkable that such a cunning old seaman as Capt. Perkins was known to be, should have been so simply outwitted by the privateer's-man.

The true facts of the case soon transpired, in so far at least as it became known, in some way or other, that the supposed American skipper was no other person than the notorious Love! After this clever trick had been bruited about, all eyes were on the look-out for him, and our cruizers were diligent in their exertions to arrest his career, but for some time without success. At last, it fell to the lot of the Hon. Lieut. W. Pakenham, of the *Désirée* frigate, commanded by Capt. Henry Whitby, to take the King of the Rovers. The ship, whilst cruising off St. Jago de Cuba, sent an armed boat away in chase of a schooner, there being, at the time, but little wind. In the morning the boat returned, having recaptured the schooner, which had been taken two days previously by a large French privateer, commanded by the celebrated Captain Love, who was himself in the captured vessel on his way, it afterwards appeared, to St. Jago, to superintend the sale of his numerous prizes.

When the lieutenant boarded the schooner, which was an American, he was met by a gentlemanly man, who welcomed him on board, and congratulated him on his success in recapturing the vessel, of which, he said, he was the master. He then stated that the privateer's-men belonging to Love's vessel, on the approach of the man-of-war's boat the last evening, had taken away a large amount of specie, and had landed in a sand cove not far off. After detailing this circumstance with seeming anxiety and earnestness, he requested the lieutenant to allow him the use of the schooner's jolly-boat with four of her crew (his own men!) for the purpose of searching for and recovering the money, which he knew the privateer's men were going to bury in the sand, according to their usual practice, and then proceed to their own vessel, which was at anchor in Escondido: it would not, he added, occupy him more than an hour to go and return with the money; the schooner at this time being close in-shore.

The story was indeed plausible; events of that sort frequently occurring: but there was something peculiar in the dress and in the manners of the man that did not bespeak him an ordinary American master; and suspicion at the moment crossing the mind of the lieutenant that he was no other person than the celebrated privateer's-man, induced him to tax the hero with an intention to deceive him. Finding it useless to dissemble, the would-be Yankee skipper, without further hesitation, and with the utmost *sang froid*, acknowledged himself to be the veritable Capt. Love of whom our cruizers were so inquisitive. He was immediately afterwards recognized by one of our boat-

swain's mates, named Jolly, who was on board H.M.S. *Thetis* at the time of his capture in the last war.

Capt. Love was certainly a remarkable character, even among the many enterprising, clever, and resolute seamen who figured at this era. He was about five feet ten inches in height, admirably proportioned, and extremely active, with a shrewd penetrating eye devoid of any expression of fierceness,—such as we should expect to observe in a lawless rover,—and a pleasing intelligent countenance, which bore a striking likeness to the portrait given of the intrepid but unfortunate Mungo Park in his book of travels. He was a perfect linguist, well read, of polished manners, and very pleasing address, and withal a most entertaining companion. Such is the outline of this extraordinary character.

Whether "Love" was his genuine patronimic or not, is doubtful; one thing, however, is certain, he used it when he was a boy at school in Scotland, where he was educated. But nobody knew who he was, or what countryman he was—all was wrapped in mystery. There was no lack of funds, however, for his early support; and, certes, he, whilst playing the buccaneer at sea, took good care never to be in want of money. According to report he was said to have been a native of Ireland; but he strenuously denied this; affirming that he was by birth a Frenchman, and that it was merely on account of his Scottish education, and the turn his manners had taken from that circumstance, that the world had done him the honour to pronounce him a subject of the King of England.

The master of the frigate perfectly recollected to have been at the same school with this second Paul Jones, at Glasgow, which Love unhesitatingly acknowledged, although, as he observed, that event was not likely to be very favourable to him. His speech was that of an Englishman,—alike free from the Irish accent or the lowland brogue of the Scotch.

The officers of the frigate were not a little pleased at having intercepted this grand piccaroon, who had for so many years appeared in these seas as the leading star of Gallic enterprise. But his having twice escaped whilst a prisoner, impressed them with the idea that he would, in some way or other, get clear off if transferred to another vessel. It was the captain's determination, however, that every care should be taken to prevent it whilst he remained in the ship.

Experience proved to us (what, indeed, had been long manifest) how little dependence can be placed in men not possessed of those honourable and upright feelings which ought to exist in the bosom of every individual commander employed by civilized nations in a state of warfare; and with what justice the system of privateering has been so universally stygmatized. In every war where private armed vessels have been permitted, the most oppressive and unjust transactions have occurred. Here, the vessels cruising under French colours were not certainly a remove from pirates;—no vessel came amiss to them; —to flags in amity with France they paid no respect; and in their

spirit of wild lawlessness, they disregarded the universal laws established among civilized nations. As a proof, we may here state that in the short space of seven or eight days, we retook a Dane, a Swede, and several Americans! And on this subject—although the time and circumstances have long since passed away—I cannot help making some reflections on the conduct of the latter government, which ought to have imbibed a very different feeling towards Great Britain than that of hostility; as, in the recapture of American vessels out of number, and the preventing many from capture, by the vigilance of our ships of war, the mercantile interests of the United States were greatly benefitted. In truth, we may be said to have been the protectors of its trade, and, therefore, to have deserved its gratitude rather than its resentment. No doubt the more sober and thinking part of the citizens thought and felt that we were entitled to this; yet it is surprising to reflect with what unconcern the Government of the "States"—which, as a neutral, was the greatest sufferer during the war—looked on, and indeed affected towards the flagrant acts of injustice perpetrated by French armed vessels on its shipping; whilst, at the same time, how unceasingly, and with what asperity, it blustered forth its anger towards England for having exercised the right of search, and for possessing herself of those of her subjects who had been seduced, if not from their allegiance altogether, at least from the duty which they naturally owed to their country through the machinations of the republican citizens. I do not mean to say that the Americans had no reason to complain in some matters, as I am but too sensible that they had. But it may be said that they almost forced us into an unjustifiable line of conduct towards them. As I have written a separate paper on this subject, I shall close this digression.

(To be continued.)

A VOYAGE TO THE WEST INDIES, *with Notes on St. Lucia.—By C. R. Maclean.*

(Concluded from page 432).

Before taking leave of Castries for the coast, we will take a glance at its market, and describe the various supplies that may be found there. Fish is plentiful and of great variety, and in the season at times turtle can be had in any quantity; the kingfish and barracouta are almost daily to be had in the market. The price is fixed by an ancient French law at five pence per pound on all descriptions exceeding four pounds weight; and without reference to the quantity that may be caught, be it great or small, this price is never departed from. The small fry, such as sprats or jacks, may be bargained for by the lump; and I have at times had a bucketful of the latter for a shilling.

Turtle, when retailed in the market, is the same price as other fish, fivepence per pound; but these, when plentiful, can be bought alive at from two pence halfpenny to three pence per pound. Fresh beef and sometimes mutton can be procured almost every day excepting Friday, most of the inhabitants being Roman Catholic, which with them is a *jour maigre*. The beef of the country, though not so fat and juicy as we are accustomed to at home, is nevertheless passable, and reasonable in price; it was formerly 6d. per lb., but since the installation of a Mayor, it has been increased to 7d., the additional penny in the price of butcher's meat being one of the blessings conferred by the Corporation.

Saturday is the great market-day, when ground provisions and every description of tropical fruit and vegetables are displayed in great abundance. The market-place then presents an animated and interesting scene. The picturesque costume of the Negresses with the jupe and Madras turban, and the deafening clamour of their tongues, altogether present a most amusing picture to a stranger. The jupe may be described as a skirt or petticoat, without sleeves or boddice, fastened up under the arms, surmounted by a chemise, and is a dress peculiar, I believe, to the Negresses and coloured women of the French Antilles, and upon the whole is very becoming when set off by the turban headdress. The Negroes here have a habit it seems peculiar to them of holding a conversation with each other from opposite sides of the way, never condescending to cross the road to close with one another, not seeming to know or care whether the subject is of interest or agreeable to others or not; the women in the same way keep up an animated conversation with each other from opposite sides of the market-place, and a running cross fire of conversation is going on, increasing in strength of voice in proportion to the distance between the speakers, in every degree of intensity, from a whisper to a scream, so that the atmosphere around the market-place is both highly perfumed and charged with bewildering sounds! The first is nearly as unpleasant as the latter is unintelligible. One could not imagine, however, from the joyous merry laugh resounding through their ranks, a happier assemblage of people than that presented at the market-place of St. Lucia on Saturdays.

The operation of discharging our cargo had been considerably retarded by incessant rains from the middle to the latter end of February, a rather unusual thing for the season. This duty having been accomplished, on the morning of the 26th of February we cast off from the wharf and made sail for Soufrere.

St. Lucia appears long to have been the object of contention between us and France in days gone by. The splendid harbour of Castries and its many fine bays, its extensive forests and numerous never failing streams of water, mark it as the finest position for a naval station in the West Indies. Its excellent qualities in this respect were most forcibly dwelt on by Admiral Rodney, who, in a despatch addressed to to the Minister of that day, pointed out the advantages of St. Lucia

over those of Antigua, an "Island," he says, "without wood and water, and whose harbour is small and incapable of receiving large ships of war, [and besides] to leeward of all the enemy's islands."

Hauling round the Tapion and steering S.S.W. along shore for half a league, reaches the Bay of Grand Cul-de-sac, where Adml. Barrington, in 1778, and the Count de Grasse were engaged, the former in defending and the latter in attacking the admiral's position, on the result of which depended the fate of St. Lucia. The Grand Cul-de-sac River falls into the sea on the N.E. side of this bay, and, in the dry season, its mouth is often dammed up by the surf washing back the alluvial matter, and the stream being too weak to clear it away, and then a lagoon of stagnant water is formed. Most probably there is some underground percolation going on, as the stream above the lagoon is constantly flowing towards the sea. The water of the Grand Cul-de-sac River has a bad character, and to avoid any ill-effects from the decayed vegetable matter with which it abounds, it should be taken well up from the sea, at a considerable distance above, in the running stream. In consequence of there being but one or two sugar estates in the vicinity of Grand Cul-de-sac, the bay is entirely deserted by large vessels; but occasionally a small coaster may be seen at anchor in it, loading firewood for Barbados.

After passing the Bay of Grand Cul-de-sac, and continuing along shore at about half a mile from it, the coast presents a bold and precipitous aspect, with sombre forests and deep ravines, until the extensive and fertile valley of Roseau and its bay is opened, which, capacious and smooth as it may be, is now seldom used except by droghers. It has the disadvantage of being exposed to northerly winds; and without going very close to the shore, the water is too deep for anchorage, there being fifteen fathoms within a cable's length of the beach. Of all the fine bays and anchorages presented by St. Lucia, there is one remarkable little creek, which particularly deserves our notice, called the Marigot de Roseau, and but a short mile to the N.E. of the bay of that name. It is a double basin of deep water, the inner one being completely concealed from view seaward; the two basins being linked together by a small channel. They would contain two or three line of battle ships, with half a dozen others. In fact, a small fleet might lie here secure from hurricane and tempest, or the observation of an enemy. It is said that during the war with France, a privateer, commanded by the notorious Cunningham, chased by a fast sloop of war, made his escape and was saved from capture by diving into this singular little place.

The valley of Roseau is said to be one of the richest in the island; but its extraordinary fertility appears to be its bane, for no European, or even Negro, constitution, unless of one born in the valley, can for any length of time withstand the pernicious effects of the malaria that is continually rising over the rich ground of Roseau. The proprietor, with a perseverance more characterised by devotion to his interests than a feeling of humanity, has made many unsuccessful attempts to locate European labourers on his estates in this valley, which, as might

have been expected, was to them the valley of death, for in it they soon nearly all found a grave. Extensive works of different kinds, including steam power, were erected, and a railway laid from them intersecting the valley. A vast sum of money was expended and mighty expectations were formed, which have never been realized. The railway became swamped in mud in one place, overgrown with a rank vegetation in another, rusty machinery, delapidated buildings crumbling to decay, once cultivated fields now overgrown and choked with bush and briar, indicate the ruin of the scheme, and the fallen condition of the rich valley of Roseau.

Proceeding onwards, after passing this bay and valley the coast presents the usual features of hill and dale, precipices and deep ravines. The next object that attracts the eye independently of the sombre forests that clothe the sea face of the island from the shore to the mountain, the summits of which are lost in the clouds, is the Anse Layraye, another of the bays on this coast offering anchorage in ten fathoms at a warp's length from the shore, and where wood and water can be obtained. A miserable little straggling village appears on the beach, remarkable for its solitary little chapel, and its general destitute appearance. The population of this village, in 1851, was 207, of which one only was white, and this one most probably was the priest. Little or no cultivation appears on this side of the island. The few estates that were established in the bottoms, ravines, and bays, are, like the valley of Roseau, fast sinking to ruin; not that the soil is worn out or at all impoverished, but, it is said, owing to the insolvent state of the proprietors, who, without means and without credit, cannot go on with cultivation.

Continuing our course along shore, and as we approach Soufrere the coast begins to assume a wild and chaotic aspect. The gigantic walls of rock rising vertically from the sea, suggest the idea that this has been the scene of some great convulsion of nature, of which there is no record. And on opening the bay of Soufrere itself a scene is presented to view that for picturesque grandeur and beauty is perhaps unequalled in all the West Indies. This spacious bay, smooth as a mill pond, is bordered by a richly cultivated valley, and the gigantic Pittons or Sugar Loaves, two enormous pyramids of solid rock, rising perpendicular from the sea to the height of nearly 4,000 feet, stand like two huge giants guarding the entrance, contribute to form a grand and imposing sight.

The Bay of Soufrere is situated at the extreme West end of St. Lucia, and its northern point or boundary is fifteen miles distant from the Tapion. It is bounded on the South by the little Pitton or Sugar Loaf, and is nearly two miles in depth. A vessel working into the bay, though the water is deep on both sides close to the precipice, should keep on the South side, where the breeze is more regular. In consequence of the great height of the mountains surrounding the valley, the wind in the bay is generally baffling and variable, and when a strong trade wind is blowing, it comes down in heavy gusts, that require care to guard against. All small sail should be stowed, and a

single reef should be taken in the topsails, should it be likely the gusts will be heavy.

It must be observed that the water is very deep in this bay; in fact, in consequence of this it cannot be said to offer any anchorage, for a vessel has to make fast to the shore. The direction of the wind being continually Easterly, is always blowing out of it, and the water is as smooth as in a dock. There is a depth of thirty fathoms' water a cable's length from the beach; but it is little use to trust to the anchor to hold a ship at Soufrere, the ground being so steep the anchor rolls down the face of the bank without taking hold. The best way to bring a ship up at Soufrere is to send a boat on shore with a warp to make fast to one of the large trees that will be found on the beach in front of the town, and by pulling straight off to the length of the warp, the ship will be enabled to pick up the boat, or by sending another rope to meet the end of the warp. This being accomplished, all sail should be speedily furled, particularly if the hawsers cannot be depended on, for should they give way, it will be no use to let go an anchor, as there is little chance of its holding, and the ship will drift out of the bay, giving abundance of trouble to get in again. It has happened, that from not being aware of this, and trusting to the anchor to hold, a ship has drifted out with sixty fathoms of cable up and down, and has had to remain out a whole day and night before the anchor was got to the bows and the ship worked into the bay again. Having hold of the hawsers fast to the shore, the ship may then be hauled in to twenty-five fathoms and the anchor let go. In this depth she will be half a cable's length from the shore, then she may be hauled stern in towards the beach as close as the draft of water will admit.

There is a depth of three fathoms at ten yards from the beach. A very small scope of cable will suffice to keep the ship's head steady to seaward. And as the wind seldom or never blows in from West, (except perhaps during the hurricane months,) the bank being so steep, even if a breeze should come from that quarter, it would be of short duration, and the anchor will hold well by dragging up the steep face of the bank. Good moorings to the shore are indispensable. A stream chain and hawser from each quarter is what I have been in the habit of mooring with, and at times have had to get out an additional mooring, the wind coming down the valley in fearful gusts, leaving you the next moment in a calm. The bay is open from the W.N.W. round to S.S.W., from which latter bearing round to the South-Eastward it becomes sheltered by the point of the great Pitton.

Having as yet seen no notice of this bay in any books of directions for the West India Islands, and as it has, for reasons already mentioned, become lately much frequented by vessels from Europe, and in most charters for this island it is stipulated, the vessel to receive the cargo and to be put alongside at the Bays of Soufrere and Vieux-fort, imperfect as the foregoing remarks are, in the absence of all others they may be of some service to a stranger, more especially as there are no pilots, and the master has to act on his own judgment. Should the master however be an entire stranger to the place, he will

hardly fail to meet with the advice and assistance of Mr. H. Busby, the Resident Colonial Revenue Officer, who is ever ready generously to give this, and to do all in his power gratuitously. But as the Harbour Master of Castries is allowed (when his assistance is required) to charge four shillings per foot pilotage, I think it would be but fair to allow a charge of say two shillings per foot at Soufrere, and make the payments for it compulsory when such service is required. H.M.S. *Barracouta* has recently I understand surveyed the coast and anchorages of St. Lucia, so that we may hope soon to have a more perfect chart of this interesting island.*

The town of Soufrere is next in importance to Castries, and contains a population of 1,600 souls, the white portion of which are the descendants of the first French settlers; and besides these, there are two or three natives of France. There is not an English family resident in the town or even in the quarter of Soufrere, so that both are strikingly and essentially French in manners, customs, and habits. In addition to the beautiful scenery by which it is surrounded, it enjoys the advantage of a most salubrious climate, and has besides excellent springs of mineral waters within a few minutes walk, the healing properties of which have proved of inestimable advantage to several invalids who had recourse to them. They were proved on analysis made in 1785, by order of the French Government, sufficiently efficacious in curing those maladies for which recourse is had to the mineral baths of Europe. The remains of a fine building and several baths within its ruined walls, some of which are yet in a tolerable state of preservation, attest the care bestowed on them by the French while they held St. Lucia. In 1836, when Sir Dudley Hill governed St. Lucia, he made an attempt to restore these baths for the public benefit; but through the unpatriotic and selfish feelings of a few, who happily no longer exercise much influence over the destinies of St. Lucia, this excellent design was frustrated, and the Governor was actually sued before the Royal Court for trespass on the lands of an estate contiguous to the baths, which lands were nearly in the same state of ruin as the baths are now.

There is a small Protestant and a larger Catholic place of worship, the first fast going to decay, and the latter almost continually crowded,

* As we know of no chart of these coasts worth having, it can scarcely fail to be useful. And we may observe that in cases of this kind where no survey has been made, the excellent example of Capt. Nolloth, while a lieutenant of the *Royalist*, is well worth imitating. On the African coast near the Cape, also on the Brazil coast, on the coast of Arracan, including a considerable portion of the Salween River, also the Saddle Islands, (a portion of the Chusan group,) this officer made some excellent surveys, equalling indeed those of the trained surveyor, and rendering his presence quite unnecessary.

For this work, which he committed to paper in a manner highly creditable to him,—for the neatness of the drawing vied with the trigonometrical accuracy of the work,—Capt. Nolloth was presented with a hundred pounds by the Admiralty, a reward to which, considering the wear of instruments and personal exposure to the effects of climate, he was well entitled.—Ed.

and is well embellished with saints and glittering tinsel. The largest portion of the inhabitants are Roman Catholics, the only Protestants are principally Barbadian emigrants labourers on different estates in this quarter of the island, who meet together every alternate Sunday in the Protestant church of Soufrere. Here religious instruction, according to the Established Church of England, is given by the Rev. Mr. Cropper, who is the resident minister of River Dorie, where, it appears, a much larger number of Barbadian and other Protestant labourers are located. From their isolated position and the ignorance and consequent superstition of the natives, the Roman Catholic priests are said to exercise a most tyrannical sway over them, and with their usual power use them for good or evil. Unfortunately, the latter sometimes happens, and the priests' influence has been severely felt when turned in that direction. While we were at Soufrere a terrible feud existed between the priest and the majority of his white parishioners. The consequence was at this time that his chapel was almost deserted by that portion of the community; but he mustered strong in the coloured and Negro race. The quarrel at one time wore so serious an aspect that an additional magistrate had to be sent from Castries to preserve the peace. The black and coloured population, being the partisans of the Abbé, began to mob and insult the white ladies and gentlemen, by way of proving the excellent Christian principles instilled into them by their Romanist teachers, whom they knew or thought to be obnoxious to their spiritual pastor and master. About the same time also incendiarism broke out in this quarter; and from the circumstance of the fires always occurring on the estates of parties most obnoxious to the Abbé, there were not wanting conclusions attributing the mischief to his influence on the minds of an ignorant and superstitious peasantry. It would perhaps be difficult to suppose any man capable of counselling or advising such atrocities; but at the same time it is easy to suppose that superstition and ignorance may have led the Negro to imagine it a meritorious action to distress or even ruin those whom he was taught to consider the enemies of their Padre, on whom they looked as more than mortal man! Before we left the quarter the matter had become the subject of special inquiry, and by direction from the Governor-in-Chief, Mr. H. H. Breen, administering the government, was at Soufrere inquiring into the cause and continuance of the strife between the Curé and his parishioners.

About a short hour's journey from the town, is the Sulphur Mountain, or the Soufrere itself, from which the parish derives its name. And being the greatest natural curiosity in St. Lucia, the voyager's trip to this quarter of the island would be incomplete without paying a visit to this interesting spot. Notwithstanding therefore that venemous and deadly reptiles, for which this island has unenviable notoriety, have made this region their favourite resort, the scene amply repays the visitor, at least so I thought, for the perils of the journey. The best time for him to start for the volcano is early in the morning, taking his breakfast with him as we did, not forgetting some eggs, for

the novelty of boiling them in Nature's pot, while a refreshing stream of cold water is running within a few feet of it.

There is, besides, a peculiar pleasure experienced in ascending the heights of Soufrere early in the morning; the serenity and pureness of the air, perfumed with the odours of the campiche, the mango, and other wild blossoms, which impart a sweetness around, and an elasticity of spirits that one feels but cannot describe. After passing the Terre Blanche estate the road to the volcano degenerates to a critical and somewhat dangerous footpath, that would be impracticable for any but the little sure footed horses of the country. This path then skirts a mountain ridge that forms the South-Western boundary of the deep ravine in which the volcano is situated. Proceeding cautiously over this mountain path, the ground soon begins to change its character. Calcareous earth mixed with sulphur and other volcanic matter, indicates the approach to the object of the journey, and the change observable in the vegetable kingdom betrays the sterile character of the ground. Emerging suddenly from a thicket of ferns that here seem to flourish, the visitor is confronted by a lofty mountain, totally denuded of vegetation; and looking down between it and the one on which his path was traced, it seems as if suspended on its side. A dense cloud of sulphureous steam is seen floating at an immense depth beneath, and waving to and fro in the eddy winds above it.

Moving onward a little further brought us to a somewhat level spot on the face of the mountain, where we observed the ruins of a wooden building, once the residence of Mr. Robinson, agent for Messrs. Wood and Bennett of Antigua, who made an attempt, in 1836, to transport the sulphur from this volcano for shipment to England. One or two cargoes were sent home accordingly; but the adjustment of the sulphur question with the Neapolitan Government and other causes produced a failure, and these gentlemen soon abandoned the enterprise. At this ruin the guide informs you that you must dismount, as the sulphur is now beneath you, and the descent must be made on foot. Strange it appears—but the opposite side of this sulphureous valley to the very summit of the hill is bald and sterile as a rock; yet that on which the visitor makes his descent is densely clothed with trees, shrubs, and a rank grass, in which the deadly rattail serpent loves to lie concealed; it is his favourite haunt, so that the descent to the sulphur requires the greatest caution and a good look out. In this great field of nature, open for exploration by the naturalist, I have omitted to mention that a portion of the mountain over which the road passes to the sulphur, and where we observed the ferns to be growing so luxuriantly, is composed of ocherous earths, peculiarly interesting as one of the agents in Nature's great laboratory where the diamond is produced. A traveller visiting these parts, who had spent some years in Mexico and Peru, observed to a gentleman of my acquaintance that from the appearance of the vegetation in the vicinity of the sulphur, the soil was highly auriferous, and that no doubt gold might be found in this neighbourhood.

After partaking of our breakfast in the ruin of Mr. Robinson's

house, accompanied by our guide we began our descent of the steep face of the mountain, and soon the hissing noise of the pent up steam escaping was audible, and the air was impregnated with a strong sulphureous and disagreeable smell. In a few minutes more of cautious descent, we reached the bottom, and were soon standing, as it may be said, on the safety valve of that terrible engine that no doubt at some remote period, far, far antecedent to all human record, upheaved the mighty hills that now surround us. Before us lay several acres of a chaotic mass, principally a white clay mixed with sulphur, cinders, and alum, the whole surface being highly heated, and from which steam is constantly issuing through innumerable fissures. But the most interesting and imposing parts are the immense cauldrons of boiling water, dark as ink, and as yet unfathomed, in a constant state of violent ebullition, throwing volumes of this pitchy dark water many feet high. We counted as many as fourteen of these fountain cauldrons. The largest, and to all appearance the oldest in action, being about four fathoms in diameter, has apparently sunk from its original level some twenty feet. Looking down into this fearful cauldron inspires one with awe and wonder, while huge volumes of steam are curling up from its inky surface, and when the eddy breeze wafts them towards you the effect is suffocating, and obliges you to change your place to avoid them; besides which, the whole surface is so heated, that it soon penetrates the soles of the strongest shoes!

There are several other cauldrons of lesser dimensions: in some of which the water has become exhausted, leaving a bubbling and simmering black mud. The extent of surface exposed to this subterranean fire may be estimated at three to four acres; and that it is not entirely confined to the boiling cauldrons, is evident from the fact that in perforating any portion of the surface to the depth of a few feet, there immediately issues from the puncture a jet of sulphureous steam. Beautiful crystals of sulphur and alum in a pure state are profusely scattered over the surface of the crater, which is much broken and undulating in its conformation, and which, with many deep basins, once apparently active fountains, are now dried up. The most elevated portion of the crater is a longitudinal ridge composed entirely of sulphur and white clay, that has become hardened by the subterranean heat and exposure to the sun. From the most elevated spot on this ridge there is a splendid view of the whole crater and the surrounding objects. From this position the mind, in contemplating the awfully grand phenomenon thus presented, is filled with amazement and a deep sense of one's own littleness in the presence of a mere portion of that awful work which declares the might and majesty of God! An amazement reminding one of that, so forcibly described by the poet, which shall seize mankind on the awful day,—

> "When terror and glory, joined in their extremes,
> Our God in grandeur and our world on fire."

Around the numerous fissures from which steam is constantly issuing, the beautiful process of sublimation is seen going on as the sul-

phur is collecting and crystalizing around the orifice of the volcano. There is a constant stream of cold pure water running down into the crater; but this small stream can hardly be adequate to supply the waste by evaporation of the many cauldrons so constantly in a state of ebulition. Mr. H. H. Breen, in his *History of St. Lucia*, says of this volcano,—"There is a peculiar feature about the Soufrere that does not belong to any other volcano. Of course it can bear no comparison with Etna, Vesuvius, and other celebrated volcanoes for the intensity and violence of their eruptions or their terrific grandeur even in a state of quiescence; but it surpasses all others by its uninterrupted manifestation of the volcanic process.

After an hour's sojourn inspecting and contemplating this grand manifestation of omnipotent power, we retraced our steps up the steep side of the mountain by which we had descended, and mounting our horses turned again towards the town. From what we had previously heard of the Soufrere our expectations were more than realized, and we returned highly gratified with what we had seen. On taking out my watch I could hardly recognise it as the same, it had completely changed colour! and the silver in my pocket, as also everything metallic, to the very buttons on our clothes, all had changed to a dark leaden colour, so that we were much in doubt whether or not our very skins had not undergone the same transformation from exposure to the fumes of the volcano. On reaching town about noon, with minds bent on serious meditation from what we had just seen, our road led us by the Roman Catholic chapel, and we looked in almost involuntarily. The interior appeared exceedingly neat and apparently well kept; but to us who had just left so wonderful and terrible a display of almighty power as presented by the Soufrere, we could not help looking with feelings tinged with irreverence and contempt on the puny insignificant images we saw hung around to stimulate the mind to devotion by a profane imitation of Him whose wonderous works we had seen in all their terrible grandeur. Nevertheless a calmer judgment led us to a train of more charitable reflections, and we were content to think that however simple or insignificant the object may be that leads the mind to these feelings of adoration, that to a reflective mind the whole universe, both in the vast works of its Creator and the paltry works of the created, should ever tend proportionally to inspire respect.

The heavy rains that had fallen in the latter end of February had checked the ripening of the canes, and the manufacture of sugar had been partially if not wholly suspended; consequently we made but slow progress with our loading. We had been four weeks in the Bay of Soufrere and had only taken on board one hundred hogsheads. In addition also to these *contre temps*, one of the fires, attributed as arising from the feud with the Abbé, happened on an estate of a shipper in this quarter, and my friend had a mule pen and magass house entirely consumed. The magass house was the most serious loss, as it contained all the fuel on the property that had been prepared for making the crop, and the work on the estate in sugar making was for a time of necessity suspended.

We had now to move our ship to Vieuxfort Bay, at the S.E. side of the island, and accordingly on the morning of the 24th of March we cast off the moorings from shore, regained our anchor, and proceeded; but before reaching the point of the grand Pitton the wind freshened to a double-reefed topsail breeze, and was coming down from the lofty Pittons in fearful gusts. The current was also found to be running with such velocity to the N.W., that we were glad to take refuge at our old anchorage; so we put back, and with some difficulty were again made fast to the shore at Soufrere by 2h. p.m. Finding that on our last attempt to get to Vieuxfort our ship was too light to work to windward, I engaged boats to bring us some thirty hogsheads from Anse Ivraine Bay, that I had intended to go for in the ship, when a larger shipment would be ready on our return from Vieuxfort. As a knowledge of the currents is of the greatest importance to those who may have to go coastwise to load their cargo at St. Lucia, I shall note down what I have observed of their general characteristics in my next paper on St. Lucia.

VOYAGE OF H.M.S.V. "TORCH,"—*Lieut. W. Chimmo, R.N., Commanding,—from Sydney to the Gulf of Carpentaria and Victoria River.*

(Continued from p. 439.)

As we entered the river the thermometer in the sun was 130°, in the engine-room 118°, and in the stoke-hole 134°. Snags, medusæ, pelicans, and all the uninteresting and muddy portion of the river were passed, along with Quoin Island; but when we reached the sand-bank off Observation Island it was most difficult to tell where the channel really was. However, by keeping near the sand-bank we carried three fathoms with us, altering course to the best of our judgment. We were fairly within the river, and every reach as it became presented to us elicited a general exclamation of "What a lovely river!" and the Victoria really is a noble river.

Entrance Island came in view, which, together with the opposite shore, assumed the appearance of ruined fortifications. Huge blocks of reddish sandstone presented themselves, standing one upon another and forming regular sides of a fractured edifice, looking more like the work of man than that of Nature at some not very distant period. I was tracing closely all these natural curiosities with my glass, when, lo! it fell on a mark! The truth rushed on my mind in an instant—Gregory was gone! His vessel had left the river—all our efforts useless! The orders to port the helm hard, bring ship to an anchor, and lower away the galley, were obeyed as quickly as they were given.

I landed on the North point of Entrance Island and found, to my mortification, the following notice:—

Victoria River, July, 1856.

The schooner *Tom Tough*, attached to the North Australian Expedition, passed down the river this day on her voyage to Timor, and thence to the Albert River, in the Gulf of Carpentaria, where she will meet Mr. Gregory. On her passage up in September last she grounded on a bank of rocks above Shoal Reach, and, drifting to the sands above Curiosity Peak, did not finally clear them for twenty-eight days, or to about the end of October, when she proceeded up the river to the camp, which had been formed on the 13th about ten miles below Steep Head, on the western side. From this camp Mr. Gregory made one trip up the river in portable boats and two journeys by land; in the last of which he penetrated to 20° 18′ S., and has now started with part of the expedition for the Albert River.

During the detention of the schooner at the camp her frame was strengthened and damages partially repaired by Captain Gourlay; and on leaving it she was laid on a suitable bank near the Dome, caulked, and repairs completed.

Six of the crew were disabled for some time by sickness and John Finlay, the Carpenter, died April the 22nd, 1855 [?6]. His grave is near the bank on which the vessel lay, and from a gouty stem tree near it, with head board and inscription, the following bearings were taken: the Dome, W.N.W.; the Valley, N.N.W.; the points of the Table Hill, N.½E. and N.E.

The detachment of the expedition on board left camp on the 2nd of this month and joined the schooner below the shoals, with the Dome E.N.E., ten miles.

Wood was taken in from the point on the North, and water from the bight about three miles on the other side. The well, which is uncovered only at three-quarters ebb, bears from the Dome W.b.S., and from Curiosity Peak W.N.W. A cask has been sunk. Boats may be laid alongside in the soft mud, and 300 gallons of water filled in each tide.

Letters have been buried in the forge and oven, at the camp, and the places indicated by inscriptions on the trees.

T. T. BAINES, *N. A. Expedition.*

While reading this notice, disappointment, with all its train of withering sensations, were gradually creeping through me! Sixteen thousand long miles had I come at an hour's notice, after being in England only three weeks, to perform this service, and here was the result! To repine was useless, and the next thought was our future disposal. The *Tom Tough* was gone to Timor, Gregory to the Albert River, one month since. I was two months at Sydney, and was now to return home, having effected no earthly good.

On returning on board my plan would have been to proceed at once out of the river for Timor; but there was no chance of seeing

Gregory there, and letters, according to the notice, having been left at the camp, it appeared to me better to obtain those destined for England, to take home. So we passed the remainder of the day in sober meditations on the short sightedness of poor human nature and moralising on our want of luck. This being, as I have before noticed, the birthday of our illustrious Prince, we had even prepared a good dinner for Gregory and his associates; there were the ten turtle in fine order, too, which were ready for them at Bountiful Island.

On the 27th, at daylight, we proceeded up the river for water, and moored in Holdfast Bay, in the same position occupied by the *Beagle* sixteen years since. Seven natives, having made their "coey," followed us for some distance.

All hands searched in vain for the wells dug by the *Beagle;* but we found two water holes about a mile from the beach, which supplied plenty of good water.

In the course of our search for water we discovered the "playhouse," as it is termed, of the interesting Bower Bird. It is a rare and beautiful specimen of this little artist of Nature's own teaching. The work consists of a number of twigs of the same size, being placed by it with their larger ends in the mangrove mud, their upper and smaller ends being brought together neatly, so as to form a complete bower. This done, the bird *(chlamydera nuchalis)* then amuses itself by flying to and fro with a shell in its beak, always carefully depositing it at the entrance of the bower, then flying off for another and another, and, as if to store it, bringing seeds or anything ornamental it meets with and placing them also with much care at the entrance of the bower, but always passing through it in the course of its work. Our speculations about this being the nest of the bird were soon at an end, by discovering that the bower was below high water of spring tides.

Many of the natives were now seen on the opposite bank of the river lighting fires with ruthless destruction. We saw them also blazing over many miles of country, and considered their doing so was to "burn us out," as is their custom.

All hands were employed wooding and watering; in the course of which they found a tree with the following interesting inscription on it:—"This river was discovered by the officers of H.M.S. *Beagle*, on the 18th of October, 1839, and was named the "Victoria River," in honour of her Majesty the Queen of England." Near it two water holes were found, which are no doubt the *Beagle's* wells.

We found the tides were regular and very strong, the ebb running seven hours, the flood five.

Next morning, before daylight I started with a whale-boat's crew, accompanied by the Second Officer, to visit the late camp and to search for letters left there by Gregory, taking with us provisions sufficient for five days.

We had gone many miles before daylight showed us where we were, and the scenery by which we were surrounded was truly grand. Every mountain top presented the appearance of a naturally inacces-

sible fortress. The river stream was rushing onwards in "bores," and hurrying our boat rapidly on its bosom, sometimes indeed rendering it quite unmanageable. How readily might a fertile mind consider this as emblematic of those happy moments of the sunny days of life which rush from us, and which no sooner come than they are gone! But we had no time for comparisons. Before the tide had turned down we found we had thus gone over fifty miles. We accordingly landed, and commenced our search, with the hours of daylight left, in the spot indicated by the notice, namely, ten miles below Steep Head. But we could find nothing, not a trace of the camp in all the places that we searched, through which people could only enter by openings in the mangroves. At sunset we looked out for a camp for the night, and hauled our boat on a flat rock where there was but two feet rise and fall. The thermometer in the sun was 125°.

Next morning having determined to proceed as far as Steep Head, we examined every spot on both sides of the river for the camp. After a hurried breakfast, and when rounding the lower portion of Long Reach to the S.E., discovered the camp before us. But it was six miles below Steep Head and not ten. It looked like an English farm-yard, abounding in thatched houses, huts, sheep-pens, horse-sheds, forge, &c.; and the place, too, was well selected for a camp.

We landed on a pier made of large stones and pigs of ballast; and as we proceeded in our road lay iron hoops, rope, tubs, buckets, old clothes, Indian corn, old boots and shoes, pieces of harness, and a pair of Mr. J. Wilson's new flannel inexpressible linings shall I call them; and we arrived at the Oven, in the interior of which, protected by four iron pigs of ballast, we discovered a bottle, containing a notice to the following effect.

Camp, Victoria River.

On Saturday, 21st of June, 1856, the exploring party of the North Australian Expedition, consisting of seven persons, (as under,) left this camp on their way to the Albert River, in the Gulf of Carpentaria; and on Wednesday, July the 2nd, the remainder (as under) finally abandoned the camp and proceeded down the river to join the schooner *Tom Tough*, which had dropped down to Shoal Reach about three months previously.

The vessel will sail as speedily as possible for Timor, whence, after obtaining supplies, she will proceed to the Albert River, and the detachment of the Expedition on board will form camp and await the arrival of Mr. Gregory.

Subsequent information will be left on Entrance Island.

Exploring Party:—A. C. Gregory, Commander; H. C. Gregory; Dr. F. Mueller; J. R. Elsey; R. Bowman; C. Dean; J. Melville; and thirty-four horses.

On board:—T. Baines; J. S. Wilson; J. Flood; G. Phibbs; C. Humphrey; J. Fahey; H. Richards; J. M'Donald; W. Dawson; F. Showel, and J. Selby.

John Finlay, carpenter of the schooner, died April 22nd, 1856, and is buried near a gouty stem tree.

Tuesday Evening 1st of July.—The finder of this document will greatly oblige the Expedition by giving it every publicity, and, if possible, by forwarding it to his Excellency the Governor of New South Wales, or any other of the Australian Colonies that may be convenient.

T T. BAINES.

After perusing this information, we went to the Forge, where another paper was found buried, containing a similar notice. We then passed an hour at the Camp, admiring all the arrangements. It consisted of seven thatched houses, three huts, some sheds for cattle, and sheep pens, two deep and good wells, and an entrenchment all round. No natives had been near the place since the party had left it. A road was cut several miles in a S.S.E. direction as straight as an arrow. Before leaving I sat down at Gregory's table and penned a notice to leave there, small as was the prospect of its being ever found. But it related our arrival, object, and intention; and then proceeded to place the papers in security for the next visitor. The boat's crew meanwhile having dined, had discovered a small pot of black paint, and were amusing themselves by painting some facetious notices outside the doorways, and a board would inform the visitor that at the "Victoria Hotel" Good Beds would be found, besides Ginger Beer and Refreshments. But it was acknowledged to me that a person had actually to his disappointment, made his fortune at the Diggings by selling ginger beer.

After filling our water casks at Gregory's well, we commenced our descent of the river.

Although the scenery around was magnificent, and would have attracted the attention of the voyager, I could find no interest in it. My mind was entirely absorbed in the movements of Gregory's party and my own disappointments; and to my discredit as it may be nature had no charms for me!

We hauled the boat up at dark on a sandy tongue of land in Long Reach, and were compelled to burn fires all round us to keep off the swarms of musquitoes and flies that infested us. At our dinner we had actually to put our great coats on and turn the collars up to keep off these interminable pests. But all this was of little avail. They found the way to give us a sleepless night, one of continual torment instead of rest. The men suffered on that night who had never felt a musquito. In the morning, as might be expected, we scarcely knew each other. Our faces, eyes, and hands, were fearfully swollen,—and, without waiting for breakfast, we made off for the centre of the stream, by which in some degree we managed to avoid our tormentors.

As we were hurried down the river by the ebb, it presented at low water a far different appearance to that which it had done;—all the extensive mud flats scarcely leaving us a channel to proceed through.

On these flats we saw the stately black and white ibis, with his

red legs; and also a few pelican, but we were too weary to think of our guns.

On Musquito Flat we intended to have dined; but the moment the boat touched the shore we were assailed by such a host of musquitoes that we thought it wiser to haul off and take refuge at anchor in the river. At this anchorage I had the misfortune to lose my gun overboard by accident irrevocable, for the tide was too rapid and the water too muddy to attempt to recover it. Here also the chronometer was thrown off the compass-box, the effect of which was to break the balance spring and glass, and to add to my misfortunes, which it is well known never come singly, while using the pocket chart of the river, that I had treasured much, a sudden puff of wind blew it overboard. This Musquito Flat had brought us nothing but a series of disasters.

Having anchored to the flood so as not to lose ground, at 2h. a.m. on Sunday morning the ebb commenced and we again started; but I had no chart to guide me, and had to guess our way, when suddenly, in the midst of the stream, we were stopped by land, of which I knew nothing. The tide was rushing rapidly by, and I recollected there was a rise and fall of 20 feet, and that we passed this place at high water. We therefore proceeded slowly until daylight showed us a steep sand bank, far over our heads, on part of which we managed to land.

The tides had now become very rapid, on the change of the moon, and it was impossible to cross them except at slack water, which was almost instantaneous, for the moment the one tide ceased the other commenced.

At length we arrived on board completely knocked up; not having seen a single native. Their fires, however, and the howling of the dogs at night, had proved to us that they were not far off. The thermometer had been at noon of each day consecutively 125°, 116°, and 134·5°. And it was with no satisfaction that I found the men were so fatigued that it would not be prudent to attempt removing; five were on the sick list with fever, dysentery, inflamed eyes, and rheumatism.

When the tide slacked we unmoored with difficulty; and after some round turns and twistings by the tide, which took great liberties with my *Torch*, we pursued our course down the entrance of the river.

The heat was so excessive to day, and the evaporation so great, that the backs of all my books parched and curled up; a box-wood ruler lying on my table warped three eighths of an inch in twenty-four inches; a box-wood thermometer, three eighths of an inch thick, warped one tenth, threatening to break the glass tube, which fortunately had a little play.

At sunset on the 2nd, we anchored between Entrance Island and Indian Head, where I at once sent a boat to place a notice of our proceedings and intended movements.

While at dinner, the vessel took a shear with the flood tide, the officer having omitted to stopper the cable after veering: and

before she could be brought up, 70 fathoms of chain had run out, which placed the vessel in a most dangerous situation, only a ship's length from the sunken rocks off the North end of Entrance Island. In this position, if we had hove in, even with the steam up, she would have broken her shear and gone on the rocks; our only chance was to wait until slack water and save the anchor. A man was therefore kept at the helm to ease her, and I remained anxiously watching her movements. The tide was running six or seven knots flood.

At 11h. p.m. the tide slacked, and after a long and tedious heave the anchor was up, and we steamed closer under Indian Head, bearing South, (magnetic,) where the anchor was let go for the night. This occurrence prevented my visiting Indian Head, where I had hoped to see Capt. Stokes' relic of his voyage, and leave one in its place for the next visitors.

(To be continued.)

The Principal Evils of our Merchant Service.—No. II.

London, June 17th, 1857.

Sir,—Having noticed in your valuable work for the present month another case of dismasting, where the Board of Trade has presented the Captain of the American merchant ship *Hamilton* with a chronometer, for his humane services in rescuing the Master and part of the crew from the wreck of the British vessel *Thetis*, it has occurred to me that if these acts of justice are gratifying in themselves—which they certainly must be—how much more so it would be to prevent, as much as possible, the recurrence of those disasters by which they are rendered necessary. Whoever hears of a man-of-war being dismasted? If, then, such stringent regulations as prevent this in H.M. ships were adopted, in respect of manning, discipline, &c., in merchant ships, as pointed out in my last, these disasters would rarely occur; for there is no more reason why a merchant ship should be dismasted than one of her Majesty's ships, provided that she be sent to sea in a proper state, with a sufficient number of hands to work her, and the upper deck clear of everything in the shape of cargo.

No time can be more favourable than the present for instituting enquiry and providing a remedy for all those glaring evils included under the four heads commented on in your July number, and which cannot be too often repeated till they are amended, viz., undermanning, overloading, cheap outfits, and absence of discipline. If Parliament refuses to sanction a code of laws necessary for the safety of her Majesty's subjects travelling by sea, and for the maintenance of a safe and proper discipline to insure obedience to orders, when proposed to them, then at least the responsibility must rest where it is.

It is correctly, perhaps, asserted that the Board of Trade provides for the safety of passengers by sea and land. The latter no one can deny; but as to the former it is too often contradicted by such accounts as that of the ship *Boanerges*. If a railway carriage is out of order or unfit for service it can be legally rejected from the train, and thus lives are saved by units which the same authority exercised in reference to ships would save by hundreds!

With the exception, perhaps, of passenger ships, the Board of Trade has but a very limited power, and then only can exert it partially. For instance, there is no power to condemn rotten and unserviceable ships, which have done their work and should not be allowed to go to sea in any case, such as an emigrant ship just reported to have foundered a few days out from Ireland. Neither is there any power as to the subject of manning. A ship of 1,000 tons may go to sea with only twenty men, provided that men can be found thoughtless enough to consent to go, and officers, too, who are so straightened in circumstances as to undertake the charge of such a ship from sheer necessity.

It is most extraordinary in this great maritime country where we see so much exertion made by powerful and wealthy individuals, headed by a nobleman, for the preservation of life from wreck, that no one takes up the cause of the *prevention* of that wreck, and thus striking at the root of the evil! That the services of a shipwreck society cannot be well dispensed with is quite true, as it is principally in the coasting trade where wrecks occur on our own shores, and which must continue to occur to a great extent with the best of management, seeing that we have no harbours of refuge on so great an extent of our seaboard as that presented by our Eastern coast. But the benefit of the foreign trade is principally the subject of these observations, and it is a melancholy fact that if the same amount of exertion were made to prevent shipwreck as there is to save life after shipwreck, at least ten times the number of seamen and passengers' lives would be saved as there are at present.

Until the whole system of our foreign trade is laid bare and a committee of thoroughly independent nautical men employed to revise the laws, particularly as to manning and discipline, our merchant service must continue to be a disgrace to us as a maritime nation, and our best seamen will continue to leave the country!

To trace the whole system from beginning to end would be no easy task. Still much may be done by little at a time. So let us compare the treatment of the seaman of the navy with him of the merchant service. Let any one inspect the decks of a man-of-war when her crew are at dinner: he will there see every mess with its regular table and seats, plates, knives and forks, and everything clean and orderly, and the men quite as decently provided for, if not more so, than any of those of the same class as themselves on shore. Let him now go from that into one of the best of our merchant ships of the present day. Not a table, plate, knife, or fork will he see here! he will find the men sitting about on chests where they can in the

limited dark space assigned to them, or perhaps under the top-gallant forecastle—a place which in other days was the shelter of pigs or live stock. He will then observe that the cook of the mess comes down to this abode of darkness and cuts the allowance of beef or pork for the crew into as many parts as there are men to be served, giving to each his part from a tin dish, the same knife being used that serves the men for cutting tarry ropes or scraping dirt from the decks this being the only article they have for these several purposes, when about £10 would supply all these men with comfortable mess tables, plates, knives, and forks, and make the merchant seaman as comfortable as his brother seaman in the man-of-war, or at least as much so as his assigned place will admit.

The improvement of the sailing qualities of our merchant ships is forcing itself on shipowners, for by a rapid passage to distant countries a quick market is obtained and a more ready return of capital, with a corresponding profit. Hence have arisen those clippers which have astonished the world by their performances and even beat their rivals of the United States, who have at least set us the example of building good models for our merchant ships, as well as in other nautical matters. Thus we read in a Portsmouth paper of the day that

The *James Baines* and *Champion of the Seas*, clipper freight ships, Captains McDonnell and McKirdy, embarked the 20th and 97th Regiments, and 350 of the 42nd, collectively, on August 6th, at this port, and dropped out to Spithead with them on the 7th; whence they sailed for India on a competing trial with the screw steam transports, which is looked to with great interest by the service and the public. The owners of the Black Ball line of Australian packets spontaneously gave £200 into the hands of Colonel Wright, the Assistant Quartermaster General of this district, to relieve the distresses of the poor wives of the soldiers embarked in the *James Baines* and *Champion of the Seas*, as expressed by the following brief but noble spirited letter:—

On board the James Baines, at Portsmouth, August 6th.

My dear Sir,—As I know from the experience of being a soldier's son that there is more glory than riches in the profession of arms, I believe there must be many sorrowing hearts among the poor soldiers' wives; and, as a substantial proof of the deep interest felt by the owners of the *James Baines* and *Champion of the Seas* at these sad partings, I beg to enclose a check for £200, which I shall feel obliged by your dividing between the commanding officers of the troops now embarking in these ships.

Yours very faithfully,
T. M. MACKAY.

To Lieut.-Col. Wright, &c.

Then, again, a Liverpool paper says, in reference to the Royal visit to these ships,

One feeling of pride pervaded all the inhabitants of this great port at the visit of her most gracious Majesty and royal family to the famed Liverpool clippers *James Baines* and *Champion of the Seas*, although they well knew that her Majesty could not have seen any vessels approaching to their dimensions, and having the accommodations for conveyance out of the port of Liverpool. Messrs. James Baines and Co., the owners of the splendid Black Ball line of Australian packets, to which these two noble vessels belong, may

feel justly proud of the Royal remark, "She had no idea that she had such ships in her merchant service." Certainly no ships or owners are more worthy of royal honours.

Now all this cannot be otherwise than most gratifying to Englishmen. The noble ships,—the noble, considerate act of their owners for the wives and families of the soldiers embarked in them for foreign service,—the comfort of the troops themselves,—the competition as to which ship shall first reach her destination, and the approving remark, of which their owners may be justly proud,—all this is worthy of "the nation which possesses the largest mercantile navy in the world." But we see nothing here about the comforts of the crews of these noble ships, and whether they really were as well provided in their berth and mess articles as the troops or whether they were huddled together in a manner similar to that above mentioned does not appear. But as the shipowners have found out the way of improving the sailing of their ships by an attention to their form, let us hope they will not stop there, but attend to the comforts of their crews by not only improving and not curtailing their berths but also by an attention to their comforts when embarked. An attention to these, to ensure the comfort and order of the crew, is as essential to the character of a British merchant ship as her sailing qualities, for, after all, on that crew depends the passages she may make.

Then as to undermanning. This great evil in the merchant ship obliges every man in her to do the work of two. We are continually seeing enticing advertisements about "*very fine fast sailing clipper ships*," but not a word is said about the number of their men. All merchant ships courting patronage should advertise the *number of their crew of fore-mast men*, with their tonnage, if it be desired that they should be considered complete in all essential points. Those puffing recommendations may be all very well for the superficial passengers, but old hands are not caught by them; and it is a well known fact that scarcely a vessel now-a-days goes to sea that is not short handed,—some even to half their proper number of seamen. It has been stated in the House of Commons that merchant seamen are deteriorated, and no wonder! Is not such a condition sufficient to deteriorate the best of seamen and to make him a grumbler? He gladly leaves the country under such circumstances and finds employment where he will be better cared for. Need any one be surprised that the *Hermes* came up to Calcutta and made a clean sweep of about 200 of such malcontents in the late Burmese war; or that more recently the *Encounter* carried off fifty more of these merchant seamen, and so superior were some of them to her own that one of the men she obtained out of the *Sutlej* was made captain of the forecastle before she left the river.

Again, when these men are maimed or wounded in the service of their rich mercantile employers what claim have they on them? no legal claim whatever upon any one! But how is this matter with their brethren of the navy? They have a pension and an asylum to go to. But there is no provision of any kind for the merchant sea-

man in old age,—too many of whose brethren may be found who have lost their limbs by the falling of masts or by volunteering in some desperate case of cutting away some miserable wreck, who are now wandering helpless cripples for life. And yet these are the men that private letters inform us are looked upon to give their assistance in these days of terror in India to man the guns of Fort William, and to aid in the general defence. And nobly, no doubt, they will do so, both officers and men, from those feelings of loyalty which have never been found wanting in British seamen in time of need.

Some benevolent individuals, led principally by naval officers are endeavouring to effect something as to a permanent hospital for maimed and decayed merchant seamen. No doubt something of the kind would be most beneficial at the large ports of London and Liverpool; but, with the exception of the maimed and disabled, the merchant service is far too large to provide for except upon the principle of out-pensioning, which is far beyond the reach of private subscription, and could never be done with effect without aid of the Government to the extent of £200,000 per annum. But this, if it were granted, would not be lost to the country, as it would retain some of the best seamen in the merchant service for cases of emergency.

In those fine fast sailing ships which have been selected by the Government for the conveyance of troops to India, and in which nothing is defective except the too general fault of undermanning, the contrast between the treatment of the soldiers and the crew is most painfully remarkable, and would be best understood by inspection. By the anxious care of his Royal Highness the Commander-in-Chief nothing has been overlooked that could in any way tend to their health, comfort, and contentment. Proper and trusty officers have been sent to see everything done for them that can be done; the whole main deck in most cases has been entirely given up to the troops, mess tables and seats fixed; so that they are as well provided as the men in the navy on that score and far better as to provisions, having the best descriptions of preserved meats and vegetables sent for them. With the most common care there is no doubt that these men may be landed in India healthy and strong and fit to take the field at once, as I have several times seen myself under circumstances less favourable. But what has been done in this way for their crews? Will you tell me, Mr. Editor? for I fear it amounts to nothing!

Although the knowledge of these facts may not hasten any zealous advocate to exert himself in bettering the condition of merchant seamen, yet it is proper at all events that through such useful publications as the *Nautical* these evils should be made known, as thereby they may yet be looked into and, with others, probed to their very bottom. Thus, at least, a service will be done to one of the most useful classes of men in the country, and who instead of being lost to us would at any time, by proper treatment and discipline, add fresh vigour to the right arm of England,—her naval power.

TRIDENT.

To the Editor of the Nautical Magazine.

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from page 424.)

Return Voyages from the Indian Ocean.

No. 9.—*Return Voyage from the Red Sea, the Persian Gulf, or the Ports on the West Coast of India, by Route* No. 1.

Vessels bound from the Red Sea, the Persian Gulf, or any of the ports on the Western coast of India, in the course of the N.E. monsoon, to the Cape, may adopt the route No. 1 by the Mozambique Channel. It is the most direct route for leaving the Indian Ocean in this monsoon from the Red Sea or Persian Gulf; but from any of the ports on the Western coast of India it should not be taken during the height of the monsoon, in December and January, when the N.E. winds generally prevail throughout the Mozambique Channel, or at least reach very nearly to the Southern part of it.

It is important in all cases when leaving the Western coasts of India, not to adopt this route either too soon or too late; that is to say, neither towards the beginning nor towards the end of the monsoon. Notwithstanding it is the shortest for leaving the Indian Ocean, it might happen that a vessel would be much detained by the Southerly winds, which are very frequent in October and November, as well as in February and March.

The strong Southerly current flowing is undoubtedly favourable, nevertheless this route should not be taken when leaving the West coasts of India with the N.E. monsoon. Besides, in January and February heavy squalls have to be encountered in the Southern part of the channel, and for this reason most seamen always prefer the route No. 4 (the Middle Passage,) when leaving either of the ports of that coast.

From the Red Sea or the Persian Gulf, the route is direct, and when near the African coast a vessel should follow these directions and those subsequently given for doubling the Cape. First steering for the Comoro Isles, and then passing North of the Seychelles and the islands in the N.W. part of the Archipelago of Madagascar; from thence a vessel should pass West of Comoro or take either of the channels between this island and Mayotte. If the wind be fresh from the Northward she may keep in mid-channel; if, on the contrary, the wind be variable or Southerly, she should near the African coast in order to profit by the favourable currents which prevail there. She should always pass to the West of Juan de Nova, the Europa Rock, the Bassas da India, and make Cape Corrientes if the weather admits, then preserve a distance from twelve to thirty miles from the Natal coast, unless the S.E. winds bring a heavy sea, in which case she would keep further from it.

Instructions for Doubling the Cape of Good Hope.

In returning from India it will be always best to make the land somewhere about Algoa Bay, especially should it not have been seen to the Northward of it. The vessel may then keep at a little distance from the coast or, if desired, she may keep on the Agulhas Bank, the edge of which she should not pass. In case of sighting the coast to the Eastward of Cape Recif or East of Algoa Bay in foggy weather, and she is obliged to stand in shore working to Westward, it will be necessary, particularly at night, to keep a look out to clear the Doddington Rock in this bay.

In February, March, and beginning of April, a vessel having sighted the land near Algoa Bay, the S.E. winds being prevalent at this time, the best route for her to follow is the outer edge of the Agulhas Bank to the meridian of 23° or 24° E.; and in order to counteract the effects of the current setting W.S.W., S.W., and S.S.W. in this part, she should keep rather near the land so as not to get off the bank.

During the winter months, (June, July, and August,) when Westerly and N.W. winds prevail, a vessel should keep near the land, as the sea is smoother there than in the offing. D'Aprés de Mannevillette says that it should not be left further than thirty-six miles, and he gives this as the proper distance. He adds, "As the soundings on this bank vary very much, and as the coast is very steep in several places, sounding is not a sure means of ascertaining the distance from it, and therefore great attention should be paid to the navigation. When coming from sea, the land is often concealed by fog, which forms a curtain over it, hiding the low part of it from view, while the summits of the mountains are easily seen."

At all times of the year when the wind is strong from N.E., and varying by the North to West, it is always best to sight the coast, and to steer so as not to get to the Southward, for a vessel might find herself in the cross current of the Indian Ocean, setting Easterly as already observed.

In general there is no danger in nearing the African coast, for the wind seldom blows hard directly on it, and a vessel can mostly stand off it on one tack.

Sometimes to the East of the Cape bad weather is found while West of it. After doubling it with great difficulty fine weather is found, and strong Southerly breezes.

When a ship is on the meridian of Cape Agulhas, with the wind fresh from S.W. or S.S.W., she should stand well out so as to double the Cape well to the Southward, a precaution particularly necessary during the night.

Should circumstances prevent a ship from sighting either the Cape or Cape Hanglip, she should at least get soundings on the Western part of the Agulhas Bank, to be sure that she is far enough West. This precaution is indispensable in order to enable her to shape her next course. In fact, when a vessel is not certain of her longitude,

she should keep constantly sounding, and should not steer so as to double the Cape until she has lost soundings on the Western edge of the bank. In the event of a ship having shaped her course N.W. and again finding soundings, she should immediately alter her course to West. The Western edge of the bank runs South by East from the Cape. As to the Southern edge of it, this is rather composed of several little separate banks than by the continuation of the same bank. It often happens that in lat. 36° S., the bottom is not reached even to the Eastward of the Cape. The soundings are therefore in such a case not to be trusted, and the vessel should be further to the Northward in order to merit confidence.

Having doubled the Cape of Good Hope, a vessel may shape her course to the N.W.

No. 10.—*Return Route from the West Coast of India and Ceylon.*

Vessels from the Western coasts of India, Ceylon, or Pondicherry, bound for the Cape of Good Hope, should follow the route above indicated. From the West coast of India with the N.E. monsoon, they cannot cross the equator so far East as those from the Gulf of Bengal, the consequence of which is, that they are often carried near Rodriguez by the S.E. trade winds.

Leaving the West coast of India, a vessel should keep along the coast as far as the S.W. coast of Ceylon and Cape Dondra. From this cape she should stand S.E. with the N.E. monsoon, by which she may cross the line between the meridians of 84° and 85° E.

From April to November stormy weather is very rarely met with in the Indian Ocean; and a vessel should then pass thirty or forty leagues East of Rodriguez. During the other months it is better to give it a berth of seventy or eighty leagues.

Route from Mauritius or Reunion (Bourbon) for the Cape of Good Hope.

If desired, a vessel can put into Mauritius or Reunion. In case of doing so, on leaving these islands as soon as she is to the Southward of them she should steer so as to pass at a distance of about thirty leagues from the S.E. part of Madagascar. From the parallel of 26° 30′ or 27° she should steer W.S.W. until the African coast is made about Algoa Bay, or she may even make the coast as far up as Port Natal, to profit by the current which flows along it.

Besides the advantages of that being a direct route which we have pointed out, it admits of vessels remaining as long as possible in the region of the Trade winds without any ill consequences should they happen to meet with a different wind in this part. As soon as she has sighted the land she may follow the instructions given in route No. 9 for doubling the Cape.

Vessels leaving Madras or Pondicherry with the N.E. monsoon, to pass Ceylon whether sighting it or not should cross the line between 86° or 87° or still further East in 89°, and then adopt the most convenient course for Mauritius or Reunion, if desiring to anchor

there, or pass to the Southward of them not caring to do so; from thence she would follow the route above mentioned.

No. 11.—*Return Route from Bengal or the Straits of Malacca.*

Vessels from Bengal or the Straits of Malacca bound to the Cape, should cross the line in 89° or 91° E. Leaving the Strait of Malacca it is best to stand well out on a W.S.W. course before making to the Southward for the purpose of avoiding the light variable winds of the islands on the S.W. coast of Sumatra. In case of finding light winds near the equator, they should take that course which makes most Southing, in order to reach the S.E. Trades as soon as possible. As soon as they have found these winds they may shape a course so as to pass at a convenient distance from Rodriguez, Mauritius, or Reunion, if not desirous of anchoring there, and then follow the routes Nos. 9 and 10.

No. 12.—*Route from the Straits of Sunda and the Eastern Straits for the Cape of Good Hope.*

Vessels leaving the Strait of Sunda or those to the Eastward for the Cape of Good Hope, should navigate so as to reach as soon as possible the zone of the Trades, and also that part where they are the strongest, and then make Westing. The Trade winds are generally found fresh in 14° and 15°, and stronger in 18° and 20° S. latitude. They are generally strongest between these two last parallels, although in March and April they are often light and sometimes even interrupted by Westerly winds. The routes Nos. 9 and 10 should then be adopted.

The Arabian Gulf.

Route from Bombay or Ports on the West Coast of India to the Red Sea.

The most favourable season for going from Bombay or the ports on the Western coasts of India to the Red Sea, is from October to April, and especially so is the interval between the 1st of February and the middle of March.

Vessels leaving Bombay after April should take the Southern route, which we shall point out hereafter, and make their Westing as they near the equator. At this period they meet with strong Southerly winds near the African coast in the neighbourhood of Cape Orfui or Ros-Hafoon, during the S.W. monsoon. In working up from Cape Guardafui to Burnt Island or the Isle de Mait, they should have good sails and strong rigging, for they are exposed to heavy gusts in this passage.

During the month of May the wind is not so strong and has a more Southerly direction than during the other months, and this in the Gulf of Aden enables them to run to the West along the African coast with facility. In May a vessel may make her passage to Aden with greater certainty than at a more advanced period of the season.

Leaving Bombay or any one of the ports situated on the northern part of the Malabar coast for the Red Sea in November and December a vessel should steer so as to pass between Socotra and the Arabian coast and then make West for Aden. The strictest look-out should be kept, and frequent soundings obtained. At this period the wind is fresh, especially West of Socotra; the weather is cloudy and the land difficult to make out. It is not, however, absolutely necessary to sight it at this period, when the strait would be so soon cleared.

In January and February nearly the same winds prevail, but they are more moderate and the sky is generally clearer. At this season the N.E. point of Socotra, if necessary, can be readily made, and then the North coast of this island passed. After this a course may be shaped for Aden; or the vessel may pass North of the island without seeking to make it, as before observed, and then steer for Aden.

In March and April the wind is not so steady as in the four preceeding months (November to February). It often varies from N.N.W. to N.N.E., and calms, light breezes, and sometimes squalls, alternately follow each other. However, the weather is generally fair during one month. On leaving Bombay at this season, a vessel should pass southward of Socotra; for after the beginning of April the N.E. monsoon ceases near this island, as well as near the coast of Arabia, and instead of it light breezes from S.W. to West and frequent calms take place. Northerly currents also generally prevail at this season North of Socotra, and also between this island and Cape Guardafui. It is therefore advisable towards the end of March or beginning of April to pass about twelve leagues South of Socotra, so as to make Cape Guardafui with the wind from S.W., which ought to be found there.

A vessel later in the season and having made the land would find it prudent to stand well in for Cape Guardafui. Should the month of April be far advanced she should also keep the land on board as far as Burnt Island, and then make for Cape Aden. From May to August, when strong S.W. and W.S.W. winds prevail, it is sometimes very difficult while in shore to get from Cape Guardafui to Burnt Island. It is, nevertholess, the best course to follow, and it will be prudent not to steer for Aden till she has passed Burnt Island. A good sailing ship may reach the Strait of Babel-Mandeb during the height of the S.W. monsoon by working to windward, taking care to profit by every favourable circumstance. At new and full moon westerly currents will be found, and also slight variations in the winds. At this season also short passages may often be made by hugging the African coast until about sixty miles West of Burnt Island; from whence a course may be shaped for the Strait of Babel-Mandeb, should the wind permit.

Routes from Southern Ports on the Malabar Coast to the Red Sea.

Vessels from Anjenga, Cochin, Calicut, Mahe, or other ports situated on the South coast of Malabar should run to the westward during the months of November, December, January, and February,

and take that channel of the Laccadives which is the most direct for them. A vessel leaving Anjenga or Cochin should pass southward of Seuhelipar, keeping on the parallel of 9° 20′ or 9° 30′ N. lat.; while from Mangalore or Mahe she would pass North of all the islands.

In March and April, when North and N.W. winds are yet found between the Malabar coast and Africa, it is better to follow the Indian shore as far as something North of Mont-Dilly, and then shape a course to the northward of all the islands and banks.

Ships leaving Anjenga or Cochin should take the 9° channel and approach Kalpeni and Seuhelipar Islands, to allow for currents which during this season set southward to the Maldives. In November, December, and January, having passed these islands, they should steer so as to pass near Socotra. In February they should steer West, keeping on the parallels of 11° or 11° 30′ N. lat. At the end of March or beginning of April it will be better to keep on the parallel of 9° or 10°. In April northerly and N.W. winds are generally found, when they should keep their wind, making perhaps a few short tacks, so that they should not get too far South. The boards should be short, as the object is to make westing. In April it is not necessary to go near the equator; while in May, at the beginning of the S.W. monsoon, on the contrary, a vessel should get to the southward.

At the end of April and beginning of March, when the ship is only 2° or 3° West of the African coast, S.W. winds will probably be found, and veering to southward near the land. At this period a vessel should endeavour to make the land to the southward of Cape Guardafui, for if she falls to leeward of Socotra the passage will become uncertain and it may be necessary to cross the line in order to get to the westward.

Routes from Ports on the East Coast of India to the Red Sea.

On leaving any port on the eastern coast of India for the Red Sea before the month of April, a vessel should pass along the southern and western coasts of Ceylon as far as Caliture; from thence she must take the 9° channel and continue her voyage, as previously shown for vessels leaving the ports of Cochin and Anjenga.

In April westerly winds prevail off the S.W. coast of Ceylon, and it would be difficult to coast this island and to reach the 9° channel. After the month of March, therefore, a vessel in the southern part of the Gulf of Bengal should take the South route for the Red Sea, keeping on the parallel of 9° or 10° S., and pass southward of the Chagos Archipelago, where in the beginning of the season more favourable winds for making westing will be found than by taking the direct route between the Maldives and the bank of the Speaker.

(To be continued.)

REPORT—*to the Directors of the Atlantic Telegraph Company.*

London, August 18th, 1857.

Gentlemen,—I forwarded by the *Leopard* a brief statement of the circumstances attending the fracture of the cable on the morning of the 11th inst., and I have now to lay before you the full particulars connected with the expedition.

After leaving Valentia on the evening of the 7th inst., the paying out of the cable from the *Niagara* progressed most satisfactorily until immediately before the mishap.

At the junction between the shore end and the smaller cable, about eight miles from the starting point, it was necessary to stop to renew the splice. This was successfully effected, and the end of the heavier cable lowered by a hawser until it reached the bottom, two buoys being attached at a short distance apart, to mark the place of union.

By noon of the 8th we had payed out forty miles of cable, including the heavy shore end, our exact position at that time being in lat. 51° 59′ 36″ N., long. 11° 19′ 15″ W.; and the depth of water, according to the soundings taken by the *Cyclops*, whose course we nearly followed, 90 fathoms.

Up to 4h. p.m. on that day, the egress of the cable had been sufficiently retarded by the power necessary to keep the machinery in motion at a rate a little faster than the speed of the ship; but as the water deepened, it was necessary to place some further restraint upon it by applying pressure to the friction drums in connexion with the paying out sheaves, and this was gradually and cautiously increased from time to time, as the speed of the cable compared with that of the vessel and the depth of the soundings, showed to be requisite.

By midnight 85 miles had been safely laid, the depth of water being then a little more than 200 fathoms.

At eight in the morning of the 9th we had finished the deck coil in the after part of the ship, having payed out 120 miles: the change to the coil between decks forward was safely made.

By noon we had laid 136 miles of the cable, the *Niagara* having reached lat. 52° 11′ 40″ N., long. 13° 10′ 20″ W., and the depth of water having increased to 410 fathoms.

In the evening the speed of the vessel was raised to five knots an hour; I had previously kept down the rate at from three to four knots for the small cable and two for the heavy end next the shore, wishing to get the men and machinery well at work prior to attaining the speed which I had anticipated making. By midnight 189 miles had been laid.

At four o'clock in the morning of the 10th the depth of water began to increase rapidly from 550 fathoms to 1,750 in a distance of eight miles. Up to this time 7 cwt. strain sufficed to keep the rate of the cable near enough to that of the ship, but as the water deepened the proportionate speed of the cable advanced, and it was necessary to augment the pressure by degrees, until, in the depth of 1,700 fathoms,

the indicator showed a strain of 15 cwt., while the cable and the ship were running five and a half and five knots respectively.

At noon on the 10th we had paid out 255 miles of cable, the vessel having made 214 miles from shore, being then in lat. 52° 27′ 50″ N., long. 16° 0′ 11″ W. At this time we experienced an increasing swell, followed later in the day by a strong breeze.

From this period, having reached 2,000 fathoms' water, it was necessary to increase the strain to a ton, by which the rate of the cable was maintained in due proportion to that of the ship.

At six in the evening some difficulty arose through the cable getting out of the sheaves of the paying out machine, owing to the tar and pitch hardening in the grooves, and a splice of large dimensions passing over them. This was rectified by fixing additional guards, and softening the tar with oil.

It was necessary to bring up the ship, holding the cable by stoppers until it was again properly disposed around the pulleys. Some importance is due to this event, as showing that it is possible to lay to in deep water without continuing to pay out the cable—a point upon which doubts have been frequently expressed.

Shortly after this the speed of the cable gained considerably upon that of the ship, and up to nine o'clock, while the rate of the latter was about 3 knots by the log, the cable was running out from 5½ to 5¾ knots per hour; the strain was then raised to 25 cwt., but the wind and sea increasing, and a current at the same time carrying the cable at an angle from the direct line of the ship's course, it was not found sufficient to check the cable, which was at midnight making 2½ knots above the speed of the ship, and sometimes imperiling the safe uncoiling in the hold.

The retarding force was therefore increased at two o'clock to an amount equivalent to 30 cwt.; and then again, in consequence of the speed continuing to be more than it would have been prudent to permit, to 35 cwt.

By this the rate of the cable was brought to a little short of 5 knots, at which it continued steadily until 3.45, when it parted, the length payed out at that time being 335 miles. I had up to this time attended personally to the regulation of the brakes, but finding that all was going on well, and that it being necessary that I should be temporarily away from the machine to ascertain the rate of the ship, and see how the cable was coming out of the hold, and also to visit the electricians, the machine was for the moment left in charge of a mechanic who had been engaged from the first in its construction and fitting, and was acquainted with its operation.

I was proceeding to the fore part of the ship when I heard the machine stop. I immediately called out to ease the brake and reverse the engine of the ship; but when I reached the spot the cable was broken.

On examining the machine, which was otherwise in perfect order, I found that the brakes had not been released, and to this or to the hand

wheel of the brake being turned the wrong way, may be attributed the stoppage, and the consequent fracture of the cable. When the rate of the wheels grew slower as the ship dropped her stern in the swell, the brake should have been eased; this had been done regularly before whenever an unusually sudden descent of the ship temporarily withdrew the pressure from the cable in the sea, but owing to our entering the deep water the previous morning, and having all hands ready for any emergency that might occur there, the chief part of my staff had been compelled to give in at night through sheer exhaustion, and hence being short handed I was obliged for the time to leave the machine without, as it proves, sufficient intelligence to control it.

I perceive that on the next occasion it will be needful from the wearing and anxious nature of the work to have three separate relays of staff, and to employ for attention to the brakes a high degree of mechanical skill.

The origin of the accident was no doubt the amount of retarding strain put upon the cable; but had the machinery been properly manipulated at the time, it could not possibly have taken place.

It has been suggested as a cause of the failure that the machinery is too massive and ponderous. My experience of its action teaches otherwise: for three days in shallow and deep water as well as in rapid transition from one to the other, nothing could be more perfect than its working, and since it performed its duty so smoothly and efficiently in the smaller depths where the weight of the cable had less ability to overcome its friction and resistance, it can scarcely be said to be too heavy for deep water, where it was necessary from the increased weight of the cable to restrain its rapid motion, by applying to it a considerable degree of additional friction; its action was most complete and all parts worked well together. I see how it can be improved by a modification in the form of sheaves, by an addition to the arrangement for adjusting the brakes, and some other slight alterations; but with proper management, without any change whatever, I am confident that the whole length of cable might have been safely laid by it, and it must be remembered as a test of the work which it has done, that unfortunate as this termination to the expedition is, the longest length of cable ever laid has been payed out by it, and that in the deepest water yet passed over.

After the accident had occurred soundings were taken by Lieut. Dayman, and the depth found to be 2,000 fathoms.

It will be remembered that some importance was attached to the cables in the *Niagara* and *Agamemnon* being manufactured in opposite lays. I thought this a favourable opportunity to show that practically the difference was not of consequence in effecting the junction in mid-ocean; we therefore made a splice between the two vessels, and several miles were then payed out without difficulty.

I requested the commanders of the vessels to proceed to Plymouth, as the docks there afford better facilities than any port for landing the cable, should it be necessary to do so.

The whole of the cable on board has been carefully tested and inspected, and found to be in as perfect condition as when it left the works at Greenwich and Birkenhead.

One important point presses for your consideration at an early period: a large portion of the cable already laid may be recovered at a comparatively small expense. I append an estimate of the cost, and shall be glad to receive your authority to proceed with this work.

I do not perceive, in our present position, any reason for discouragement; but I have, on the contrary, a greater confidence than ever in the undertaking. It has been proved beyond a doubt that no obstacle exists to prevent our ultimate success; and I see clearly how every difficulty which has presented itself in this voyage can be effectively dealt with in the next. The cable has been laid at the expected rate in the great depth; its electrical working through the entire length has been most satisfactorily accomplished, while the portion laid actually improved in efficiency by being submerged, from the low temperature of the water and the close compression of the texture of the gutta percha.

The structure of the cable has answered every expectation that I have formed of it; and if it were now necessary to construct another line, I should not recommend any alteration from the present cable, which in its working has confirmed my belief that it is expressly adapted to our requirements. Its weight in the water is so adjusted to the depth, that the strain is within a manageable scope, while the effect of under currents upon its surface proves how dangerous it would be to attempt to lay a much lighter rope, which would, by the greater time occupied in sinking, expose an increased surface to their power.

I have, &c.,

CHARLES T. BRIGHT.

A very full meeting of the directors of the Atlantic Telegraph Company was held at their offices on the 19th of August.

The fullest investigation into the events which have led to the present pause in the undertaking, into the sufficiency of the appliances for paying out the cable, and into the additional arrangements and precautions which the valuable knowledge and experience gained by the late attempt will dictate in respect to future operations, has been committed to the charge of sub-committees appointed for the purpose to report to the general board.

The directors will sit in permanence till their future plans have been fully discussed and determined on.

The appeal of the directors to the commanders of the several ships composing the Atlantic Telegraph squadron to come forward and aid the undertaking at this juncture with their advice and experience, has been cordially responded to, and the following officers have arrived in town, and will be in consultation with the directors to morrow:—

Capt. Wainwright, H.M.S. *Leopard;* Capt. Sands, U.S. frigate *Susquehana;* Capt. Hudson, U.S. frigate *Niagara;* Master-Commander Noddall, H.M.S. *Agamemnon;* and Lieutenant-Commander Dayman, H.M.S. *Cyclops.*

Sufficient information has already been obtained to show clearly that the present check to the progress of the work, however mortifying, has been purely the result of accident, and is in no way due to any obstacle in the form of the cable, nor of any nautical difficulty, nor of any experience that will in the future affect in the slightest degree the entire success of the enterprise. The only sudden declivity of any serious magnitude (from 410 fathoms to 1,700 fathoms) had been safely overcome; the beautiful flexibility of the cable having rendered it capable of adapting itself without strain to circumstances which would probably have been its ruin had it been more rigidly constructed. The combined influences of the low temperature of the water and the compression of the pores of the insulating medium had practically shown that the action of a telegraphic cable, so far from being impaired, is materially improved by being sunk in deep water. The only difficulty worthy of consideration which remained was to demonstrate the practicability of making the splice in mid-ocean. This was put to experimental test by the engineer, in a heavy sea, subsequent to the accident, and before the return home of the ships. The two ends on board the *Agamemnon* and *Niagara* were joined together and the splice let down to the bottom, into soundings of 2,000 fathoms, during a heavy sea.

The experiment was perfectly successful, and these and all other circumstances which have been brought out by the recent expedition, have made more and more cheering and certain the prospects of complete success on the next occasion.

Saxby's Patent Spherograph.

It appears from a printed circular that Mr. Saxby (an old correspondent of the *Nautical*, whose announcement of the Spherograph first appeared in our volume for 1856) has lately accepted a challenge from the shipmasters of London to meet him at the Jerusalem Coffee House, Cornhill, to submit to public scrutiny the value of that instrument for practical purposes at sea, and that also the Marine Board Examiners have been invited to investigate that singularly simple and apparently useful invention.

Revolution may produce great things, but the overthrow of, or interference with a time-honoured *system* in any practical science would seem to have required the regular "approach," the tedious "battery in breach," the "sap," and "mine;" but in this instance an open and

vigorous assault has precipitated matters so effectually that Mr. Saxby's banner seems already to float in triumph over the partial conquest he has certainly achieved in a fair and manly contest which reflects great credit on both parties, for the London shipmasters took a wise and prompt course in assailing a pretended innovation, calculated, if fallacious, to unsettle and distract navigators, while, if truthful, its confirmation would prove a boon to them and to maritime commerce;—and, on the other hand, Mr. Saxby, in a proper spirit, consistently but resolutely met them.

It seems that the ship captains were led on the occasion above referred to by a veteran tutor, sailor, and East India navigator, who is also an accomplished nautical astronomer, G. Coleman, Esq., F.R.A.S.: his letter, as published by Mr. Saxby, speaks for itself.

Naval Academy, 157, *Leadenhall Street*, 31*st July*, 1857.

Dear Sir,—In compliance with the earnest request and solicitation of many Captains and officers, I was induced to attend a lecture on your Spherograph, showing how the various ways of ascertaining the latitude at sea, the variation by amplitudes and azimuths, the longitude by lunar observations, &c., were obtained by it. I attended your lecture accordingly, notwithstanding being *highly prejudiced against the possibility* of any spherical or linear tables producing anything like a practical result at sea; hence to convince myself that your Spherograph was deserving the commendations that were reported of it, I fortified myself with books containing two hundred examples in nautical astronomy, dozens of which (in the presence of many Captains and officers) were worked by your Spherograph, each example producing a correct result, that is as near as approximate tables can produce the same. From what I witnessed and worked, I have no hesitation in stating that your Spherograph will give results sufficient for practical purposes at sea.

I am, &c.,

GEO. COLEMAN.

We should hope that no means may be left untried to still further test this extraordinary substitute for, or rather *test of*, calculations, for it is as a *test* we would rather commend the Spherograph. A navigator of experience has his daily formulæ at his fingers' ends, and scarcely needs much help, except that it is at times *very convenient* to possess a ready means of solving a problem when other and distracting duties divert the attention. As an educational movement, no one can doubt that the adoption of the Spherograph as a means of conveying a better groundwork in knowledge of spherics will tend towards a large benefit on the mercantile marine. Spherical projection has of late years been too much neglected. It is an interesting subject and will amply repay the trouble of investigation.

Operations in the Canton River.

Calcutta, at Hong Kong, June 10th, 1857.

Sir,—I have the honour to report proceedings in the Canton River since my letter by the packet of 25th of May.

The arrival of the *Tribune* and *Amethyst* having enabled me to reinforce Commodore Hon. C. G. J. B. Elliot, the senior officer in the river, that officer at once commenced offensive operations against the junk forces; and on the 25th and 27th ult., he took the gun-boats and the boats of her Majesty's ships under his orders, up the Escape Creek, against the fleet which has been so long stationed in its inner waters, where he had the good fortune to capture or destroy about forty mandarin war junks, in a manner which has called forth my entire approval. I beg to invite the attention of the Lords Commissioners of the Admiralty to Commodore Elliot's enclosed report of his proceedings, and to the officers he has named for their conduct in the affair.

In my letter, No. 119, I signified my intention of proceeding up the Canton River. I accordingly embarked in the *Coromandel* steam tender, Lieut. Sholto Douglas commanding, on the 29th of May, and with the remaining gun-boats, and the boats of H.M.S. *Calcutta*, under the command of Comdr. H. R. Rolland, arrived the same day at the second bar.

I was reluctantly under the necessity of depriving myself of the urgently proffered services of my flag-captain, William K. Hall, whose presence at Hong Kong has long, under trying circumstances, proved most beneficial to the colony.

Having now an adequate force at my disposal, I lost no time in taking the necessary steps for an attack on the war junks, which have been visible up the Fatsham Creek since the 4th of January last, when they made so determined and well arranged an attempt to recapture the Macao Fort, and block up the channel. The enclosed copy of a general memorandum to the squadron, and abstract statement (numbered 2 and 3) will show my arrangements and the disposition and nature of the force selected for the purpose, which proceeded on the 31st of May to the upper part of the river.

Just before daybreak on the 1st of June I advanced up the Fatsham Creek in the *Coromandel*, the *Haughty* following, having in both vessels detachments of seamen, under the command of Commodore the Hon. Charles Elliot, and of Royal Marines in charge of Capt. Robert Boyle, R.M., and the other officers and boats attached to the 1st Division, in order to capture a fort with outworks, mounting 19 guns, on an advanced elevated point, which commanded the approach to the position occupied by the junk forces.

The flight of several signal rockets showed that the Chinese were fully alive to our proceedings. When within about 1,500 yards of the fort the *Coromandel* grounded on a barrier of sunken junks filled with stones, and the enemy opened fire. The landing party of seamen and marines were immediately put in the boats and sent ahead, and under a very heavy fire of round and grape, in which the junk fleet joined, the fort was almost immediately in our possession, Comdr. Elliot setting the good example of being one of the first in it. The landing was partially covered by the fire of the *Haughty*. One or two of the guns in the fort were immediately turned on the war junks. Happily this important service was effected without loss.

The position was a remarkably strong one, and, defended by a body of resolute troops, might have bid defiance to any attack. The *Haughty* having landed her party, went on with Commodore Elliot and the boats of the 1st Division, to co-operate with Commodore Keppel. I ordered a portion of the Royal Marines, under Lieut. and Adj. Burton, to remain as a garrison in the

fort, and sent Capt. Boyle, with the remainder, about 150 in number, to the scene of operations by land, to cut off the enemy retreating from the junks, and to prevent the advancing boats being annoyed by gingalls or matchlocks from a large village adjoining—a favourite tactic with the Chinese. One half of this force was ultimately sent back to the fort, and the remainder rejoined the squadron up the creek.

As soon as Commodore the Hon. H. Keppel perceived the men of the 1st Division ascending the heights, he advanced up the channel on the East side of Hyacinth Island, with the gun and other boats of the 2nd, 3rd, and 4th Divisions, in the order stated in the programme. With the exception of the *Haughty* and *Plover*, the gun-boats soon grounded, but, agreeably with my instructions, the boats were pushed ahead. The junks, which were admirably moored in position to enfilade the whole of the attacking force, soon opened a very heavy fire, keeping it up with great spirit until our boats were close alongside, when the crews commenced to abandon their vessels, and to effect their escape across the paddy fields. The blowing up of one or two junks hastened this movement. In about twenty minutes we had possession of fifty junks.

Leaving the 3rd and 4th Divisions to secure the prizes, Commodore Keppel then proceeded about three miles further up the creek, where more mast-heads were visible, and found twenty junks moored across the stream in a very strong position, which opened such a well directed and destructive fire, that he was obliged to retire and wait for reinforcements. The launch of the *Calcutta* was sunk by a round shot, the commodore's galley had three round shot through her, and several other boats were much injured. On additional boats coming up, the commodore shifted to the *Calcutta's* black barge, and again advanced, and, after a severe action, the enemy gave way. They were pursued as far as Fatsham, a distance of seven miles, and seventeen of them captured and burnt. In consequence of my orders not to molest this large and important city, the three junks which passed through the creek on which it is built, effected their escape.

The result of the expedition was the capture of between seventy and eighty heavily armed junks, mounting, on an average, from ten to fourteen guns, (many of them long 32-pounders,) nearly all of European manufacture. As no object would have been gained by removing the prizes, I caused them, with a few exceptions, to be burnt; and the flames and numerous heavy explosions must have been seen and heard far and wide.

This engagement opens a new era in Chinese naval warfare. Great judgment was shown in selecting the position for the fleet, and the Chinese, particularly the last division attacked by Commodore Keppel, defended their ships with skill, courage, and effect.

I enclose a list of casualties, which I regret to state is large, amounting to three officers and ten seamen and marines killed, and four officers and forty seamen and marines wounded; but it is to me a matter of surprise that, under the circumstances of the case, the loss was not greater.

I deeply regret to report the death of Major Kearney, Deputy-Assistant Quartermaster-General to the China Expeditionary force. This officer was on duty in the Canton River, and gallantly volunteered his services in the boats. He was killed by a round shot in the *Fury's* gig in the attack upon the upper division of junks.

I had the wounded collected as soon as possible, and sent them to Hong Kong the same evening, in charge of Dr. Anderson, staff surgeon of the *Calcutta*.

The force remained at anchor on the night of the 1st of June, in the position before occupied by the junk fleet, and on the following morning dropped

down to the main river, towing five of the captured vessels, which were the only ones saved from the general conflagration.

In the execution of these important services I need hardly state that every captain, officer, and man did his duty, and where all have so distinguished themselves, I refrain from making individual selections. Should their lordships therefore consider the two engagements as worthy of special marks of their approval, I would beg to suggest that due regard should be paid to seniority and services.

I must not, however, omit to bring to their lordships' notice the gallant and efficient assistance afforded me by Commodores Keppel and Elliot, and the captains in charge of the several divisions. Commodore Keppel led the attack on the junks, and the fact of his galley having had three round shot through it, and five men, out of her crew of six, killed or wounded, is the best proof of the manner in which he maintained his position.

Commodore Keppel's report of his proceedings is herewith enclosed, and I beg to add a tracing of the Fatsham Creek, showing the position of the forts and of the junk forces before the commencement of the attack.

I left the river on the afternoon of the 3rd, for the purpose of receiving the mails from England, and of waiting the arrival of Lord Elgin.

All is perfectly quiet to the northward. The squadron continues generally healthy; but latterly there has been a slight increase of fever and dysentery, which may be expected at this season of the year.

I have, &c.,

M. SEYMOUR,
Rear-Admiral and Commander-in-Chief.

I beg to add that Mr. George Raymond, Master of the *Encounter*, at Macao, volunteered his services as a pilot, and took the *Hong Kong* up the Fatsham Creek—a service of danger.

M. S.

The Secretary of the Admiralty.

Sybille, 2nd Bar, Canton River, May 29th, 1857.

I had the honour to report to you yesterday that H.M. gun-boats, tenders, and ships' boats captured or destroyed about forty mandarin junks (snake boats) on the 25th and 27th inst. I beg now to report the nature of the operations more in detail.

The fleet of junks which formerly remained near the main branch of the river had moved to a position about five or six miles up the creek. As it was very doubtful whether our small steamers could get up to them, it was necessary to have a sufficient boat force to follow up the creek, independent of gun-boat support.

At daylight on the 26th, our force was in the creek, and soon afterwards a mandarin fleet of about forty junks was seen moored in good order across the stream. The tide was a strong ebb, which rendered it less easy for the junks to escape, and although it made our progress slow, it enabled us the better to thread the way among the shoals.

A heavy fire from the junks opened upon the leading steamers as they approached; but at too great a distance to tell with effect. Shortly afterwards, as the *Hong Kong* got within good range, she opened fire, and was soon supported by the *Bustard* and *Starling*, the others being at distant range. The fire from the junks then slackened, and they got under weigh. Some were soon afterwards abandoned, and the rest plying their oars endeavoured to escape up the creek.

The steamers followed, though very slowly, on account of the shoal water;

the *Sir Charles Forbes* and *Staunch* grounded early, then the *Starling*, and eventually the *Hong Kong* ran ashore. The signal was immediately made for the boats to go ahead, and a general chase took place. The junk force divided; the main body of about fifteen continuing up the main channel were followed by the boats, led by Capt. Edgell, who detached four pinnaces up a creek to the left to follow the smaller division. Comdr. Forsyth accompanied these pinnaces, which succeeded in capturing them all (ten in number). Comdr Forsyth speaks highly of the gallant way the *Hornet's* pinnace, under Mr. R. A. Brown, acting mate, dashed in, unsupported by the other boats, which she had distanced, against three of these heavy armed junks, which struck to her.

The main body, followed by Capt. Edgell, were soon beyond range of all except the *Hornet's* rocket-boat and *Sybille's* pinnace, which kept within range of them for a long time; and Capt. Edgell brings to my notice the behaviour and most accurate fire kept up by Lieut. Brock in the former boat, and by Mr. Hudson, acting mate, in the latter. The chase was continued by this division, which I accompanied, for about twelve or fourteen miles above the place where the steamers had grounded, when the work for the men at the oars having been excessive, I determined to turn back; but with the view of getting at the junks which we still had in sight at a future time by another passage.

Near the point at which we turned, at the village of Tseen Twe, we found the lorcha *Anonyma*, which was captured last December, whilst in tow of the steamer *Thistle*. I burnt her.

On getting back to the gun-boats at night, I found that Comdr. Corbett, who had very properly remained with the *Staunch* on her grounding—the other commanders having gone on—had sent the *Inflexible's* paddlebox-boat after a junk that tried to escape down a creek to the right and captured her. Comdr. Forsyth had returned with his party, and Lieut. Dent, assisted by the officers of the other gun-boats, had secured or destroyed all the prizes. The Chinese having returned to one of the junks below, she was recaptured by Mr. Molloy, second master, with the *Starling's* and *Hong Kong's* boats. Lieut. Dent brought to my notice the conduct of that officer.

In all twenty-seven heavily armed snake boats (belonging to the Admi. Su Hoy) were captured or destroyed. Their armament consists of one heavy gun in the bow, generally a long 32 or 34-pounder, with from four to six lighter guns; each vessel pulls about forty oars. This service was fortunately accomplished with the loss of two men only wounded. The day was excessively hot, and I cannnot speak too highly of the spirit with which the men stuck to their oars, through a harder day's work than I have ever before witnessed under a tropical sun. One or two cases (but not severe) of sunstroke occurred in the gun-boats.

At daylight next morning the steamers proceeded down the creeks with the boats and ten prizes in tow, and attached with the *Sybille*, at the second bar.

Further arrangements were now made to follow up the war boats that had got away. I had already, the previous day, stationed the *Tribune* off Sawshee Channel, and I now moored the *Inflexible* abreast of the Second Bar Creek down which her guns could then range. From the knowledge I now possessed respecting the various creeks, from Escape Creek downwards, I considered it possible to guard all the outlets to the river, and with a force of boats to scour the Inland Creek and compel any junks there either to meet that force or retire towards the main river. Comdr. Forsyth with his division took up his station in Escape Creek in the evening.

At daylight on the 27th I proceeded up Sawshee Channel, as previously arranged; the boats being towed by the steamers for ten or twelve miles. I then sent the *Bustard* to strengthen Comdr. Forsyth's division, and desired Lieut. Dent, in the *Hong Kong*, to take with him the *Inflexible's* pinnace, and go a short distance up the Second Bar Creek. He succeeded in passing com-

pletely through into Escape Creek, and met Comdr Forsyth. Casting off from the steamers, the boats pulled up the Sawshee Channel, and we soon heard from the natives (who showed us every good feeling) that four of Su Hoy's retreating squadron had on the 25th gone up to Touang-Kouan, and that there were other mandarin junks there. (I beg here to mention the very great assistance I have received from the Rev. Samuel Beal, chaplain of this ship, who was good enough, at my request, to accompany me each day as Chinese interpreter; to his aid the successes of the expedition are in a great degree due, as I had failed to obtain an interpreter from Hong Kong.)

About ten miles from where the steamers were left, we opened the city of Touang-Kouan, and observed the mast heads of the war junks. The boats now gave way with a will, and though the junks were in sight fully two miles off, they succeeded in taking them completely by surprise; the boats, as they dashed in, firing into a small battery which commanded the river, and into the war junks, caused them to be immediately abandoned. The junks lay scattered along the whole length of the town, through which the river runs, and preparations were now made to destroy them, with the exception of one, the finest and heaviest armed war junk I have seen in China, which I hoped to be able to take away.

It soon became apparent that the Chinese troops were not going quietly to submit to this proceeding without further resistance, and the creek being narrow, with houses on each side, they had every facility to pick off our men. As we first passed up, only a few gingalls and matchlocks opened; these increasing in number, presently gave considerable annoyance, and it was necessary to keep up a continued fire with some of the boats' guns, from musketry, and from the *Tribune's* rocket-boat, which did good service, while other parties were employed destroying the junks, which occupied some time, and it was necessary to burn those at the upper end of the town first, and so on in succession, to enable our boats to get back.

The chief attacks from the shore took place towards our rear, at the battery at the lower end of the town, where most of the casualties occurred. Comdr. Turnour was active and useful, and on two occasions landed in a very gallant manner with small parties of marines, under Lieut. G. L. Blake, R.M., charged some two hundred well armed men, and drove them beyond the embankments.

An attempt was made to tow down the fine war junk already noticed, but she accidentally caught fire, and she was therefore destroyed with the others. That being accomplished the boats returned down the creek.

This again was a severe day's work; officers and men behaved admirably, and with the greatest spirit. I beg to report to you the able assistance I received from Capt. Edgell, and from Commanders Forsyth, Corbett, and Turnour, during the two days' operations. Their zeal and activity the last day (as before) was emulated by the officers of all ranks under them, from Lieut. Nares, the senior lieutenant, to the junior cadet.

Capt. Edgell brings to my notice the active share taken by Lieut. Staniforth in the *Tribune's* barge; and the services of Mr. Hudson, acting mate of the ship, I beg to particularly to notice.

Lieut. Richard Cox, of the 38th Regimental Madras Rifles, accompanied the expedition each day as a volunteer, and made himself very useful.

I have, &c.,

C. ELLIOT, Commodore.

To His Excellency Rear-Adml. Sir Michael Seymour, &c., &c., Commander-in-Chief.

The Raleigh's Tender, Sir Charles Forbes, Canton River, June 2nd, 1857.

Sir,—In accordance with your Excellency's previous arrangements for the capture and destruction of the mandarin junks at anchor in the Fatsham and adjacent branches of the Canton River, I have the honour to inform you that yesterday morning as soon as I perceived the first division ascending the heights for the Capture Fort commanding the approaches to the enemy's position, I advanced in the *Hong Kong* steamer with the second, third, and fourth divisions, which you were pleased to place under my command.

The *Hong Kong* having grounded shortly afterwards, we advanced with the boats, reserving our fire until within 600 yards of the enemy, when a sharp and spirited engagement ensued, the enemy continuing their fire until our men were close alongside.

Leaving the Third and Fourth Divisions to secure the prizes, we pushed forward up the Fatsham Branch, in which direction I shortly afterwards observed the mast-heads of other war junks.

On approaching a bend of the river near the village of Foutchin, about three miles in advance of the position in which the enemy were first attacked, we came to a small flat island off the southern sides of which several of the boom-boats grounded. The deeper but more circuitous and confined channel we found was to the northward.

There were now in advance, *Calcutta's* barge, the *Raleigh's* second cutter and pinnace, *Fury's* first gig, *Hornet's* rocket cutter, *Sybille's* launch, and *Calcutta's* black pinnace, with others close at hand; the tide was flowing, and before the boats mounting guns could be brought to the front we were carried to within 800 yards of the enemy, who were found to consist of twenty vessels anchored in close and compact line, presenting a front of heavy guns, that could not have been more regularly placed had they formed the broadside of one long frigate, and their fire was so well directed that I found it necessary to retire, and endeavour to re-form with the additional assistance of the steam gun-boats, at that time trying to get up, but detained by the shoalness of the water.

The *Hong Kong* having floated shortly after my reaching her, and she being within range of the enemy, I would have proceeded in her, but on her again grounding, and on my observing the near approach of the increase to our force, which your Excellency had hurried on to the front from less important service, we again advanced with the boats, and after a second sharp engagement of a quarter of an hour's duration, the enemy slipped from their anchors and proceeded up the river, making use of their oars, and when the course of the river allowed them to do so, of their sails likewise.

A running engagement and exciting chase for about seven miles, led by Capt. the Hon. A. Cochrane, now took place, the enemy quitting their vessels as they became disabled or leaky from the effects of our shot. Twelve of them were come up with in this manner; eight reached the extensive and populous town of Fatsham, three of which got in and escaped, as we could not follow and capture them without damaging the town, (which is not fortified.) or by otherwise annoying the peaceable inhabitants, contrary to your Excellency's instructions.

The other five junks we secured at the entrance to Fatsham, and have brought them down as prizes; the twelve taken on the way up have been burnt. Each of these vessels mounted from ten to fourteen guns, the bow and stern being long 32-pounders.

With so large a force, I have not commented on the individual zeal or gallantry of any particular officer; there was plenty to do for the whole of them, and your Excellency is the best judge of how they performed their duty. I have contented myself with enclosing a list of the steam, gun, boom, and other

boats, with the names of the officers who commanded or served in them; and I might venture to remark that, with such material, failure would almost appear to be impossible.

I have not had an opportunity of ascertaining the amount of injury sustained by all the steam, gun, and other boats of my divisions, but the *Hong Kong* was hulled eleven or twelve times, the *Plover*, *Starling*, and *Haughty*, gun-boats, were struck, the *Calcutta's* launch was swamped, and several others much damaged.

I have the honour to enclose a list of casualties, which, fortunately, is not so large as might have been expected from the nature of the service.

I have also endeavoured by a rough sketch to explain the position of the second division of the enemy at the time we met with our temporary check.

I have, &c.,

HENRY KEPPEL, Commodore.

To His Excellency Rear-Admiral Sir Michael Seymour, &c., &c., Commander-in-Chief.

THE BORE, OR GREAT TIDAL WAVE, OF THE HOOGHLY RIVER.

Captain Sherwill, writing from near Calcutta, April 30th, says:—

The south-west monsoon has set in, bringing with it the dangerous tidal wave, the Bore, which for three or four days at the full and change of the moon in seen racing up the Hooghly River at the rate of twenty miles an hour, dashing from side to side of the river, according as the bends or reaches deflect it in its course. Upon the approach of this wave, a distant murmur is heard, which soon turns into the cry of "Ban! ban! ban!" from the mouths of thousands of people—boatmen, sailors, and others, who are always on the look-out for this much-dreaded wave. This is the signal for all sorts of craft to push out into the centre of the river—the only spot where the wave does not curl over and break. Should any boat, or larger craft, be caught in that portion of the wave that breaks, instant destruction is inevitable. Numerous boats from the up-country provinces are lost every year, from the crews being ignorant either of the existence of the Bore, or from not knowing the correct position to take up so as to meet it. Ships at anchor in Calcutta, though not exposed to the breaking portion of the wave, frequently part their cables when struck with the wave.

Standing on shore during the rapid, rushing passage of the Bore, it is a curious sight to see the lower portion of the river, or that nearest to the sea, six or eight feet higher than the upper portion of the river—the tide rising that number of feet in an instant.

The height of the Bore varies from five to twelve feet; it is exceedingly dangerous in some parts of the river, but more moderate in others; it never breaks on both sides of the river at the same time. Deep water destroys its force, but shallow water or a sandbank brings out all its power and fury.—*Illustrated News.*

THE "GREAT BRITAIN."—The saloon passengers of the *Great Britain* have presented Captain Gray with a piece of plate. "We know," they say, "that it has rarely fallen to the lot of any ship to encounter such a succession of contrary winds as have baffled us during the passage, and, looking back, we can only wonder that we have arrived home so soon in safety, health, and comfort. This result we attribute, under Providence, to the assiduous and ever watchful care and skilful seamanship you and the officers under you have displayed all the time we have been at sea."

Nautical Notices.

Particulars of Lights Recently Established.

(Continued from p. 220.)

Name.	Position.	Where.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
14. Cape Moreton	27° 2·4′ S., 153° 28·9′ E.	Australia	R.	385	26	Est. about 1st March. Light 15 sec., dark 45 sec. duration. Var. in 1856 9¾° E., increasing about 2′ annually. See former in page 280.
15. Cape Oropasa	40° 6·6′ N., 0° 9·1′ E.	Spain, S. Coast	F.	75	13	Est. 1st April. Varied by flash every 3 min. Var. 18¾° W.
16. Mutlah. *(a)*	21° 6′ N., 88° 48′ E.	Hooghly Entrance	F.	30	7	To continue from 15th March till 15th October. In 10 fms., 7 miles S.E. of outer reef buoy. Carries red flag, and fires a rocket at 8h. p.m., midnight, and 4h. a.m. See notices of refuge establishments.
17. Rio Plata	35° 11·5′ S., 57° 1′ W. In 3½ fms.	off Point Indio	F.	30	8	Recently. The light in the outer roads is shown from the guard-ship. A light on the North spit of the English Bank is in preparation.
	34° 6′ S., 57° 28′ W. In 5 fms.	off N. end of Chico Bnk.	F.		8	
	Outer Roads	of Buenos Ayres	F.		7	
18. Cape Mondego. *(b)*	40° 11′ N., 8° 55′ W.	Portugal	F.	300	20	Est. 1st Aug. Seen from S.S.W. round Westerly to N.N.E. Var. in Jan., 1857, 22½° W.
19. Cape Delle Mele	43° 57 3′ N., 8° 10·6′ E.	Gulf of Genoa	F.	307	20	Est. not said.
19. Cape Carbonera	Building	Cavoli Island.				Point Fanale light does not exist.
19. Citadel Point	38° 11′ N., 15° 34·8′ E.	Messina	Ff.	132	12	Est. 15th July. Instead of former light. Varied by red flash every 2 minutes.
20. Owers	Vessel	off Selsea Bill	F.			Position changed to Pagham church, N.¼E.; Eastborough Head beacon buoy, N.N.E.¾E.; Mixon beacon, N.N.W.; elbow of Owers, N.N.W. ¾′.
20. Varne Sand *(c)*	Red Buoy	East Channel				Dover castle, N N.E.; Dungeness light, W.¾N., 14′. See page 280.
20. Dover Pier *(d)*	White Buoy	S.E. of Singing				Fitted with a fog bell.
21. Cay Piedras	23° 14·3′ N. 81° 7·7′ W.	Cardenas Bay, Cuba	F.	64	10	Temporary substitute for that destroyed on 28th Aug., '56.
22. Blackwater Bank, light-vessel in 19 fms.	52° 29·5′ N, 6° 7′ W.	Ireland, East Coast	F. and R.	39	10	Est. first week in October next. The vessel will carry two lights: that on the mainmast a revolving light (once a minute); that on the foremast a fixed light, 26 feet high.
23. Stanford Channel	Vessel					Position changed. East Newcome buoy, S.S.W.¾W; two chimnies in line at Lowestoff, N.W.b.W.
Bran Sand		River Tees				Position changed to 300 fms. to the Eastward.
24. Taars	54° 52·7′ N., 11° 2·2′ E.	Laaland, Gt. Belt	F.	32	8	Est. Sept. Two lights. The second or inner 663 yards from the former; 18 feet above the sea. Kept in one E.¾S. they lead up to the ferry.

F. Fixed. Ff. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established. m Mean level of the sea.

(a).—Houses of Refuge.—Notice has been given that houses of refuge for shipwrecked mariners cast ashore on the sea face of the Sunderbunds have been put up as follows:—

No. 1 —Painted red. Just to the northward of Jackson's grove on Seyers' point, forming the eastern entrance to Channel creek. It is on an extensive plain, covered with short grass, inside or to the eastward of some high sand hills that here line the shore.

No. 2.—Painted white. At the eastern entrance to the Subtermookey channel, 400 yards to the northward of the point that forms from Bulcherry Island, and 200 yards from high-water mark. It is in the midst of thick low jungle.

No. 3.—Painted black. At the eastern entrance to the Jumera Channel, 400 yards to the North of the point that forms from the entrance of the Subtermookey Channel, and 200 yards from high-water mark.

No. 4.—Painted white. On the S.E. part of Dalhousie Island, at the eastern entrance of the Mutlah river, on a sandy patch, about five feet above high-water mark, and about 100 feet in shore, distinguishable by a white flag from a long spar and bamboo, which have been put up close alongside of the house, visible above the surrounding trees.

No. 5.—Painted white. On Bungadoonee Island, about seven miles eastward of No. 4. It stands on the south-eastern part of the island, above a small sandy beach, about 100 feet from high-water mark. A long spar and bamboo, with a flag, have been put up alongside, and may be seen considerably above the trees.

In each house there is a supply of water and biscuit, a catamaran and paddles, a letter of instructions, and a chart of the Sunderbunds.

Persons cast away reaching land to the East of Saugor, should make search for the houses of refuge; and it should be borne in mind, that when a vessel is lost with a pilot on board, the fact would soon become known at the pilot station and in Calcutta. Parties, therefore, finding their way to the houses should remain there, and husband the means of subsistence, in the assurance that succour will speedily reach them; or if compelled to leave, endeavour to get westward to Saugor Island, and travel along the beach until they arrive at the lighthouse; or make their way to a large fishing village, situated on the S.E. side of Saugor Island, using the catamaran as far as practicable.

(b).—Observations.—Mariners coming from the North should not steer to the southward of S.S.W. until they round the cape, if bound to Figuera.

The coast between Cape Mondego and Aveiro is more dangerous than it is generally understood to be; at some distance from the sandy beach, banks of sand form at intervals, caused by the influence of the winds or the currents, and disperse and form again at other points along that coast, on which vessels in fine weather have grounded.

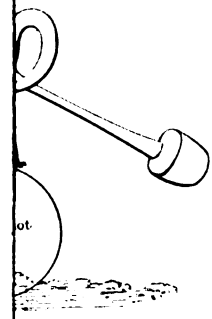
There is a good anchorage for vessels on the South side of Cape Mondego with the wind from North to East opposite to the fishing town of Buarcos.

(c).—Masters of vessels, pilots, and others, are hereby cautioned not to cross the Varne Sand on either side to the north-eastward or south-westward of the above named buoy.

(d).—The pier now extends 300 yards off shore in a S.b.E direction from Cheeseman Head; and as the work advances the blue light at its extremity will be moved outwards, and the buoy kept about 80 yards in advance of the staging.

THE BOTTLE CHART.—We have been obliged to defer all about our Bottle Chart and some notices of books—the Sunderland letter included—for our next number.

FIG. 2.



THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

OCTOBER, 1857.

Deep Soundings between Alexandria, Rhodes and Smyrna.

—Extract of a Letter from Commander A. L. Mansell of H.M.S. Tartarus. [*See Chart in August number.*]

H.M.S. Tartarus, Alexandria, 5th August, 1857.

Sir,—Deep sea sounding having lately occupied much attention, I beg to forward to you the following remarks on those of our late cruize to Rhodes and Smyrna.

The process of obtaining soundings in great depths has been, and always will be, attended with many difficulties, as proved by the experiments made by different officers in ours as well as in the American service.

The great object to be arrived at, in respect of the depth without regard to bringing up bottom, is to have a machine which would detacb a weight on striking the bottom, and thus allow the line to be hauled in easily.

Lieut. Brooke, of the U.S. Navy, invented an apparatus which appeared on trial would answer our most sanguine hopes; but still it was found to be attended, as in my opinion all sounding machines of the kind must be, with one great difficulty, viz., that of enabling one to discover the moment of contact of the lead with the bottom;—for although the lead may become immediately detached, the weight of the line will still run it out. However, with care and practice, I think a very close approximation may always be arrived at.

On the 14th of May, agreeable to instructions from the Admiralty, I quitted Alexandria for the purpose of running a line of deep soundings between that place and the West end of Rhodes, or across the

Eastern basin of the Mediterranean; and as this was a service entirely new to us, it required some forethought and attention so as to direct our investigations with proper effect.

Having no reel or winch fitted to the engine, we had to devise means according to our limited resources. Previous to leaving Woolwich, a common sounding winch or fly-wheel had been fitted abaft, on the port quarter, which was easily worked by two men. I had also several copies of Lieut. Brooke's apparatus for deep sea soundings made, as also a dozen of Bonnici's; but as they were of iron I feared they would be liable to hang. This proved not to be the case.

I received from Malta Dockyard several thousand fathoms of line, of four or five different kinds, the smallest answering to our whiting line, and gradually increasing in size to something less than what is termed hand line.

The lines were marked in the following manner:—

First reel of 1,500 fathoms, 1,000 mackerel and 500 cod or log line.

Second reel of 1,500 fathoms, 700 mackerel, 500 log line, and 300 cabin.

Third reel of 2,000 fathoms, 500 mackerel, 700 cod, 500 cabin line, and 300 stouter line.

Fourth reel of 1,800 fathoms, 1,000 cod or log, 500 cabin line, and 300 stouter.

Each line was marked to 25 fathoms, the 100 fathoms distinguished by different coloured bunting.

In the middle of the quarter deck a stand was constructed to hold the reels, so as to allow them to revolve freely and without any jerk. The weights were of three descriptions, deep sea leads cut in half and bored through, 32-pounder and 68-pounder shots. The leads were for the purpose of increasing the weight without exposing a greater surface of resistance, being placed over the shot.

Having steamed off the land, for the purpose of testing the machines, in 30 fathoms water, bottom sand, both answered satisfactorily, but I gave the preference to Lieut. Brooke's, as being much quicker; Bonnici's hung slightly. This I thought arose from the ends of the arms being too light, and I had a pistol ball placed at each end; the weight then detached itself easily on touching the bottom. I still gave the preference to Lieut. Brooke's, the tube filled and brought up the bottom, whereas with Bonnici's the difficulty was the attaching a tube which would act without fouling the arms.

This our first trial gave me great hopes of success in not only obtaining the depth but the bottom entirely across; and I was fully prepared to find 2,000 fathoms.

Having everything ready, all that was required was fine calm weather, which on the 14th of May seemed to have set in, and I steamed out under very favourable prospects, light N.W. breezes, and sea calm, with a slight swell.

The first sounding, with Lieut. Brooke's machine, was at thirty miles N.b.W. of Alexandria, in 400 fathoms, with a weight of 24lbs. attached to mackerel line. The moment it reached the bottom the

line became slack, but in hauling in we found the weight still attached. By hauling in several fathoms and suddenly letting go, we hoped to detach the weight, but without success. On coming to the surface we found the weight had been buried in soft slimy mud. The failure I attributed to the soft nature of the bottom, as also to the small resistance the weight attached offered, it being a deep sea-lead bored.

Continuing on our course, I again sounded at fifty miles with the same line and apparatus; a 32-pounder shot with a piece of lead weighing 8lbs. placed over it was substituted for the deep sea lead. Timing each 100 fathoms as it went out, the result was as follows:— Let go

Depth, fms.	h	m	s	Int.	m	s
at	8	49	50	a.m.		
100	8	50	48		0	58
200	8	51	50		1	2
300	8	53	48		1	58
400	8	56	15		2	27
500	8	59	25		3	10
600	9	2	25		3	0
700	9	5	25		3	0
800	9	8	50		3	25
900	9	12	30		3	40

During the last 100 fathoms the line was held in hand and frequently checked, to ensure a taut up and down strain. Instantly as the weight touched the bottom the line became slack, although when left it still continued to run out very slowly. It was soon discovered that the weight had not been detached, owing to the great strain brought on the line when tautened. The same process was resorted to as in the last sounding, viz., hauling up several fathoms then suddenly letting go, but without releasing it. Nothing therefore was left but to endeavour to save our line, which, from the weight attached, and the great strain, we could scarcely hope to succeed in. The line came in slowly but without any jerk, and we had the satisfaction of securing both; when, on examination, we found that not only had the shot been buried, but upwards of three feet of the line above the apparatus was covered with slimy mud!

Still in hopes to succeed, we again tried the same apparatus, but exposing a larger surface with the same weight, viz. 40lbs. At seventy miles we hove the ship to; there was a slight head swell, but it was nearly dead calm. The line used was the same, coiled on a large reel placed in a frame, to allow its revolving freely. Before letting go, a turn was taken round the winch, abaft, then led through a davit with two sheaves, secured to the stern. The first 200 fathoms was now eased down by reversing the winch, to prevent any sudden jerk, which might cause the arms to fall, and thus detach the weight. These observations were then made, 15th of May, 1857. Let go

Depth, fms.	h	m	s	Int.	m	s
at	2	40	0	a.m.		
100	2	43	30		3	30
200	2	47	40		4	10
300	2	50	0		2	20
400	2	52	30		2	30
500	2	55	4		2	34
600	2	58	25		3	21
700	3	1	35		3	10
800	3	4	30		2	52
900	3	6	50		2	20
1050	3	11	25		4	35

Fifty fathoms were allowed on each sounding for slack line. The

weight was again found not to have disconnected. In reeling in, the line carried it away at 800 fathoms.

Having failed in three instances with Brooke's machine, I determined to try Bonnici's claw, with but little hopes of better success; the result, however, proved otherwise, as the sequel will show.

May 15th, 1857, at 7.58 a.m., ninety miles N.b.W. of Alexandria, weather calm, with a slight N.W. swell, the ship was stopped. The weight used was a 68-pounder shot, slung with wire, and from the claw a straight narrow piece of wood was extended to six inches below the shot, to which it was attached. To this was secured a small brass cylinder, closed at one end, which on striking the bottom became filled, and from the weight of the shot broke the stick, bringing up only the tube which was secured to the claw by a line.

The line used in this sounding was divided in such a manner as to counteract the great pressure, according to the depth.

Experience had already taught us that mackerel line was sufficiently strong to bring up a weight of 40lbs. at a depth of 800 fathoms; I therefore reduced it to 400 fathoms, cod line 800, and cabin 300 fathoms, coiled on reel No. 2, and the result was as follows. Let go

Depth, fms.	h	m	s	Int.	m	s
	at 7	58	20	a.m.		
100	8	0	0	1	40	
200	8	1	35	1	35	
300	8	3	50	2	15	
400	8	6	15	2	25	
500	8	8	22	2	7	
600	8	10	36	2	14	
700	8	14	25	3	49	

Depth, fms.	h	m	s	Int.	m	s
800	8	17	55	3	30	
900	8	20	48	2	53	
1000	8	25	0	4	12	
1100	8	30	5	5	5	
1200	8	35	45	5	40	
1300	8	41	55	6	10	
1330						

Line up at 9h. 50m.

At 1,100 fathoms the line was kept in hand, so that the least variation experienced in the speed of running out or strain could be detected. At 1,330 fathoms a slight diminution in both was observed. Feeling satisfied that bottom had been reached and the weight detached, I reeled in.

The line came in somewhat slow to 1,000 fathoms, when a visible change was observed, the pressure evidently greatly diminished, and in 1h. 10m. we had the satisfaction of finding mud on the claw and line; but the bottom of the cylinder had been forced out, and only a few particles of clay remained sticking to the brass.

Having at length succeeded in detaching the weight, the next consideration was how to obtain a larger quantity of the bottom, and by what means. Accordingly a conical shaped piece of lead, hollowed out, jagged in such a manner as to form small baskets, was attached to the line a little above the claw.

On the 15th, at 2h. 23m. 25s., having run our distance of twenty miles, the ship was hove to as before, with the main trysail set to keep her from falling off, as there was a slight swell, and deeper water was expected. Let go

Depth, fms.	h	m	s	Int.	m	s
at	2	23	25	p.m.		
100	2	24	37		1	12
200	2	26	27		1	50
300	2	28	0		1	33
400	2	29	50		1	50
500	2	32	12		2	22
600	2	34	37		2	25
700	2	37	7		2	30
800	2	39	50		2	43
900	2	42	32		2	42
1000	2	45	27		2	55
1100	2	48	28		3	1
1200	2	51	38		3	10
1300	2	54	57		3	19
1400	2	59	5		4	8
1550	3	4	40		5	35

The weight used was a 68-pounder shot, slung as before, same line; and being held in hand, the contact with the bottom was very perceptible, and detected at once. On hauling up, the weight was evidently off, as the line came in quite easy. The cone was found to have entered the mud, but only a small portion remained attached to the grease. This sounding was most satisfactory, showing that the claw had succeeded admirably.

15th.—The swell now increased slightly, showing symptoms of a change in the weather; however, at 9.30 p.m., when 130 miles off Alexandria, and nearly mid-channel, we succeeded in obtaining bottom in 1,600 fathoms, yellow mud. Let go

Depth, fms.	h	m	s	Int.	m	s
at	9	30	0	p.m.		
100	9	31	15		1	15
200	9	32	50		1	25
300	9	34	30		1	40
400	9	36	20		1	50
500	9	38	20		2	0
600	9	40	45		2	24
700	9	43	12		2	27
800	9	46	10		2	58
900	9	50	55		4	45
1000	9	54	0		3	5
1100	9	57	5		3	5
1200	9	59	50		2	45
1300	10	3	0		3	10
1400	10	6	10		3	10
1500	10	9	40		3	30
1630	10	13	20		3	40

Same reel used; 68-pounder shot; weight disconnected easily; wind light b. c., with slight swell; scarcely any bottom obtained; line up at 11.50 p.m.

16th, 150 miles N.b.W. of Alexandria, some reel, weight detached easily; claws covered with yellow mud; 1,650 fathoms of line out; called it 1,600. Let go

Depth, fms.	h	m	s	Int.	m	s
at	5	13	45	a.m.		
100	5	16	0		2	15
200	5	17	25		2	25
300	5	18	58		1	33
400	5	20	47		1	49
500	5	22	55		2	8
600	5	25	25		2	30
700	5	27	50		2	25
800	5	30	28		2	38
900	5	33	30		3	2
1000	5	36	30		3	0
1100	5	39	30		3	0
1200	5	42	25		2	25
1300	5	46	10		3	45
1400	5	49	50		3	40
1500	5	54	0		4	10
1650	5	58	50		4	50

16th, 170 miles N.b.W. of Alexandria. Let go

Depth, fms.	h	m	s	Int.	m	s
at	0	54	45	p.m.		
100	0	56	55		2	10
200	0	58	43		1	48
300	1	0	15		1	32
400	1	1	55		1	40
500	1	3	55		2	0
600	1	6	23		2	28
700	1	8	55		2	32
800	1	11	50		2	55
900	1	14	35		2	45

Depth, fms.	h	m	s	Int.	m	s
1000	1	17	35		3	0
1100	1	20	50		3	15
1200	1	24	30		3	40
1300	1	27	58		3	28
1400	1	31	32		3	34
	Time checked.					
1540	1	37	40		6	8

Weight used 68lb. shot, attached to line on reel No. 3; Bonnici's claw. Weight detached easily; up at 2h. 55m.; bottom yellow mud.

16th, 200 miles N.b.W. of Alexandria. Let go

Depth, fms.	h	m	s	Int.	m	s
at	7	38	0 p.m.			
100	7	39	48		1	48
200	7	41	10		1	22
300	7	42	25		1	15
400	7	44	8		1	43
500	7	46	16		2	8
600	7	48	25		2	9
700	7	51	23		2	58
800	7	54	45		3	22
900	7	57	25		2	40
1000	8	0	50		3	25
1100	8	4	5		3	15
1200	8	7	17		3	12
1300	8	10	47		3	30
1400	8	15	0		4	13

Weight used 68lb. shot, attached to line on reel No. 3; Bonnici's claw. Weight detached; up at 9h. 15m.; bottom washed off.

A strong breeze now set in with a heavy cross sea, which completely put an end to all further sounding; and the ship was put under fore and aft sails. The breeze and sea increasing, we stood to the N.N.E., and sought shelter under Rhodes, and anchored off the town on the morning of the 18th of May. Here we were detained till the 22nd by strong winds, during which time we completed coal.

On the 22nd May, the wind having abated, we steamed to the west end of the island. At 6h. p.m., the West end of Rhodes bearing N.b.W. nine miles, we commenced our line of soundings, using Bonnici's claw, with a 32lb. shot attached to it. We let go, and after allowing 600 fathoms to run out without being able to discover when the bottom had been reached, we reeled up, as I felt certain that the depth could not be so great. The line carried away at 300 fathoms. We then continued our course to the Southward, as the weather was calm, intending on our return to try again in the same spot.

Each sounding was obtained most satisfactorily; Bonnici's claw in no instance failing.

On the following evening we had completed the line across. I now returned to the former spot, nine miles South of Rhodes, and obtained a depth of 400 fathoms. In our former attempt it is evident that the line was carried away by a strong current sweeping to the Southward between Scarfanto and Rhodes, caused by the late fresh N.W. winds; indeed a current of from a mile to a mile and a half was observed as we neared the passage.

The result of the soundings show a gradual slope on either side of the basin, the maximum depth being 1,650 fathoms, at one hundred and fifty miles, or midway.

Continuing to the Northward the depths between Rhodes and Nikaria afforded us excellent opportunity for trying both Lieut. Brooke's

apparatus and Bonnici's claw: the results were entirely in favour of Bonnici's claw, which in no one instance failed. The only difficulty being to detect the moment it touched the bottom; and this, as I have already observed, requires practice and keeping the line in hand.

The accident of our cross head and sway beam breaking in halves when within fifteen miles of Nikaria, obliged us to make the best of our way under sail to Smyrna.

On the 27th of June, having completed our repairs, we steamed out of the gulf, and the following morning commenced our line of sounding from the South end of Scio to join our former off Nikaria, a duty which was accomplished by sunset. A strong violent N.E. wind then springing up, further sounding was impossible, so we stood towards the East end of Candia, and anchored in Grandes Bay for the purpose of getting observations for meridian distance.

Strong breezes prevented our leaving till the 2nd of July, when we steamed to Sudsuro Bay, in the middle of the island, under the Lasitti range of mountains.

Towards sunset it fell dead calm, and at seventeen miles S.W. of Sudsuro obtained our first sounding, with Bonnici's claw, 370 fathoms, dark mud.

During our stay at Smyrna, Mr. Skead, Master of the ship, had invented a very simple and ingenious apparatus, which we had tested off Scio, and found answer admirably in shallow water. It was now to stand the test in 1,500 fathoms. A 68-pounder shot was slung as before, and attached to the rod; the lead at the upper end well greased; and having eased the line for the first 200 fathoms, it was let run as before. The line was kept in hand until the great strain suddenly ceased; and in hauling up a few fathoms the weight was evidently detached at a depth of 1,500 fathoms. We now reeled up, the line coming in slowly and with a great strain, so much so, that we expected it would break, as it had been used several times before; but the even purchase of the winch again came to our aid, and we had the satisfaction of regaining the rod, the lead being covered with yellow mud.

When within one hundred and forty miles of Alexandria, we again tested Skead's rod, using the same weight and line, and at the great depth of 1,750 fathoms. It evidently had reached the bottom, as several fathoms of the line could be hauled in by hand; but in hauling up, the strain showed the weight had not been left at the bottom. It was let run again; but, whether it was the great pressure, or the weight still attached, the line carried away at 1,300 fathoms. We must therefore put this as doubtful.

Throughout this service we found that our lines, from the great pressure, became much smaller, and very hard: after the fourth sounding, indeed, their strength then appeared much gone, and we generally lost a portion at every fifth sounding.

Strong breezes and a heavy swell now again obliged us to con-

tinue our course. However, the two questions in deep sea sounding had been solved, for the bottom had not only been reached but brought up.

I have, &c.

A. L. MANSELL, *Commander.*

To Capt. Washington, R.N. Hydrographer, &c.

Description of Deep Sea Sounding Machines used in H.M. Surveying Vessel Tartarus.

Figs. 1 & 2. The invention of C. Bonnici, a Maltese blacksmith, show the claws suspending and detaching the weight; it is made of brass, about four inches long. The arms or claws, 3¾ inches, have at each end a pistol ball attached as additional weight, to insure the arms falling when the weight has reached the bottom. The machine weighs 3½ ounces, which, with a small conical shaped lead for bringing up the bottom, and attached to the line above the machine, makes the whole weight nine ounces.

Fig. 3. Is the invention of Lieut. Brookes of the United States Navy, consists of a rod of eighteen inches long, having arms of four inches in length, which, when the weight is suspended, appears as shown in the figure; but immediately on contact with the bottom, the arms fall and disconnect the weight, as shown in the red figure 3. This instrument is fully described in Lieut. Maury's (of the United States Navy) work on the *Physical Geography of the Sea.*

Fig. 4. The invention of Mr. F. Skead, Master of H.M.S. *Tartarus*, is a rod of quarter-inch iron, of twelve inches in length, having a small hook at one end, and a weight hollowed on both sides and jagged all over inside and outside, at the other. The rod has a groove from the neck of the hook four inches towards the centre, in which groove is fitted a small wire sling, to which is attached the line for sounding, the rod having a slight curve inwards.

The weight for sounding, when suspended, keeps the rod in an erect position, as shown in Fig. 4; but immediately on reaching the bottom, the leaden weight or cup on top of the rod falls, (as shown in the red figure 4,) causing the wire sling to slip up the groove, which facilitates the hook detaching the weight. The sling and diameter of the weight being less than the length of the rod, ensures the leaden cup falling on the bottom. The weight of the machine is about twelve ounces.

[N.B. Some apparent anomalies in the first intervals will be accounted for by the 50 fathoms of "slack line" mentioned at foot of p. 507.—ED.]

The Principal Evils of our Merchant Service.—No. III.

From the much questioned policy of the repeal of the Navigation Laws, one good result has at all events been most evident; and that is the extraordinary improvement which has taken place in the build and sailing qualities of our merchant ships. The square tubs of former days no longer exist, and the models which may be seen at Blackwall, Liverpool, or Aberdeen surpass even the finest specimens of the navy. But, unfortunately, things are not all in unison in the merchant ship yet. While some have advanced others have retrograded. The several no less essential particulars of manning, internal economy, and discipline having decidedly gone back; and while all other classes of society have been improved, the merchant seaman, one of the most useful classes in the whole country, has literally been made to descend in the social scale.

Whether our late policy in respect of the navigation laws will prove (as often predicted) to be the death-blow of our maritime supremacy, depends still upon the mode of managing our great mercantile marine, for this alone can be looked to as the source of our maritime strength. And yet, so inconsistently are the vessels of it managed that, after some £30,000 or more is expended upon a new ship, well fitted out in every respect, we often see the most niggardly plan followed as to manning her;—the consequences of which are that vessels are frequently dismasted and many times lost, to secure the most trifling imaginary saving!

When the change in the Navigation Laws alluded to above was adopted, it was said that certain ruin must be the fate of the shipowners. So far from this taking place, however, it has actually come to pass that many of those, who twenty years ago were worth nothing, are now loaded with superfluous wealth! The real pinch of the screw has been borne by the officers (with few exceptions, before-mentioned) and by the seamen themselves!—the former by being shamefully underpaid, and the latter by having to do the proper work of double the number of men: in fact, having twice the amount of their due work imposed upon them.

A remarkable instance of this inconsistency in our merchant service has lately fallen under my observation on going on board a new screw steamer of upwards of 1,000 tons, since sailed for India. This vessel possessed every one of our modern improvements, and, with the exception of being rather overmasted, no fault whatever could be found with her as to her style of build and outfit, they being the most approved for quick passages in the present day. She must have cost, with her machinery complete, fully £50,000. But, lo! in the usual cramped space allotted to the crew forward she had not more than twenty-five hands (and some of these boys) independent of those in the engine-room! Now, officers who, having sailed in these screw ships, know them well, say that there is more work with the sails in

them than there is in any other. When the wind comes foul there is plenty of work to be done in furling sails, getting down yards, &c.; and when the wind comes fair and the screw lifted, a great press of sail must be carried, if these vessels are to be turned to any profitable account. Now these twenty-five hands are scarcely sufficient to furl the mainsail of such a vessel as this; and then as to the seven boats, which by Table S of the Mercantile Marine Act, she is obliged to carry, it would puzzle her commander to man even three of them. In this respect, however, she is not singular, for all merchant steamers are much in the same predicament. The law compels them to carry boats certainly, but the law does not compel them to carry a sufficient number of men to man half of them! What is the use of the boats then? Hence, most of these boats are mere top-hamper. It is true they have one good effect—that of giving confidence to passengers; but they, alas, never look behind the scenes!

Coasting vessels may safely be left to the common law. They can manage their own affairs, and when they get any troublesome characters on board (which is but seldom) they can always send them on shore and get rid of them. But when a ship is on a foreign voyage, every one in her, bad or good, must be compelled to do his duty by some means or other, or the ship must be left to her fate many hundred miles away from any assistance. I contend, therefore, that no foreign-bound vessel should be allowed to proceed to sea with less than four foremast men and boys to every hundred tons. For instance, a ship of a thousand tons should have twenty-six able seamen, ten ordinary seamen, and four boys, and so on in proportion to tonnage, and this, also independent of officers, midshipmen, or servants. Boatswain's-mates or quartermasters (when there are any rated) might be included among the able seamen. A ship with this proportion of crew, in a proper state of discipline, for that is no less essential, would then stand a good chance of being exempt from all accident. So long as owners continued to man their ships properly, it was better perhaps that they should not be interfered with; but on the present pernicious system the best and most liberal owners are at a disadvantage; and, with the exception of those who care not for throwing their risks on the under-writers, or are even indifferent to the loss of their vessels, for that is not uncommon, I am doubtful whether there would be much opposition to a fair and safe scale of manning. All foreigners, except the Americans, have larger crews than we have; but the Americans have picked men, and all working hands.

Attempts are often made to persuade the uninitiated that the great improvements in rigging and machinery make up for loss of hands. But it is a well known principle in mechanics that such powers always involve loss of time; and although in moving heavy chains or anchors, or setting up rigging they may be used with advantage, yet in taking in sail and preparing for bad weather, nothing but manual labour and smartness in applying it can prevent a ship being dismasted, or save her when working off a lee shore.

Assuming it as fact that owners really wish their ships to make safe and satisfactory voyages the mistake of undermanning is easily exemplified, even in a pecuniary point of view. Let us take the case of two ships of 1,000 tons each, equal in every respect, except that the vessel No. 2 has ten able seamen less than No. 1. Now, the expence of ten able seamen for ten months (the usual duration of an India voyage) we will say is about £300, reckoning the wages and provisions for each man at £30. The object of the owner of No. 2 will be, as he imagines, to save £300. Now without going to any extreme cases, we will trace these two ships through what is almost certain to happen, and what may be considered the general history of well or ill manned ships. We will consider them both safely towed down from the docks to the Downs early in September, when the weather is beginning to become rather squally. By the time they are anchored the crews of both ships have become tolerably sober, and the voyage begins by bringing up with a fresh S.W. wind, and veering seventy-five fathoms of chain. No. 1, being well manned, takes in two reefs and makes a good furl of every sail, and towards night she sends down her topgallant yards, and braces all up for riding it out with a snug ship, veering to ninety fathoms. No. 2 furls her sails in any way she can with her few hands, and leaves her topgallant yards aloft; she veers also to ninety fathoms, but in the night she begins to drive and lets go a second anchor, which brings her up. But the cable of her first anchor has run out to the mast, she being too short of good hands to attend to both cables. By daylight next morning, the gale still increasing, the first cable parts in the hawse, but she still holds on and makes a signal to the shore for another anchor and cable. These ships carry but two cables, although a third anchor is stowed in the waist as a spare one. About noon the wind veers to the N.W., and No. 1, with all the rest that have been riding it out without accident, get clear off. The wind comes more northerly, but it brings so much surf upon the beach that great delay occurs in getting off the anchor and cable for No. 2, and she does not like to move without it; and so No. 1 is clear of the channel before No. 2 is clear of the Downs!

In four or five days more, when No. 2 is off the Start, the wind having backed round, comes in a heavy squall at S.W. While the crew aft are trying to get in the mainsail and to lower the topsails, there are not hands enough to haul the jib down, and the fore topmast goes over the side. Now comes another source of detention. Not being able to agree with a steamer as to an offer of towage into Plymouth, the wind keeping at S.W. she reaches Torbay; but, finding the only spare topmast she has on board is a main one, she must get a new fore topmast made at Brixham. After three days more she leaves Torbay with a fair wind; but, having only ten hands in the watch, the sails are seldom properly trimmed, and from the constant practice of running off before the wind in squalls, No. 1 beats her twelve days in the passage out. And when homeward bound a similar delay of twelve days, from various causes, is almost certain to occur, particu-

larly on nearing the channel in about April or May, when a short handed ship can make no progress whatever; while another, by keeping well to the northward and working along the English coast, can and does often get into her port.

As these ships, when without troops, have never less than forty passengers both out and home, the expence of which may be reckoned at five shillings a head per day, their maintenance for these twenty-four days will be £240, which, with the wages of the officers and crew, will exceed the £300 which the owners of No. 2 save in imagination by sending the ship to sea ten able seamen short of the number required for safety and expedition, to say nothing of those more serious evils as well as dangers which will arise from discontented officers who from being disgusted with such proceedings will take no kind of interest in the ship, besides her overworked and discontented crew.

This is no more than the common routine which forms the history of these ships, without taking any extreme case. Yet it is quite sufficient to show how much a compulsory law is required on the subject of manning, besides an efficient, practicable code of discipline, unless we are to content ourselves with going on losing the lives of her Majesty's sea borne subjects by wholesale, besides some of her Majesty's soldiers, who have had some extraordinary narrow escapes, although they are little known to the public. When it appears by the best estimates that there have been upwards of 1,100 wrecks and casualties of British shipping in the year 1855, and 1,300 in ten months only of the year 1856—as far as are made up to this time, and that losses go on still increasing, it is high time to consider whether something cannot be done towards remedying such a state of things, or whether they can go on without moral responsibility for it.

Before closing these remarks on the defects of the merchant service, so notorious to every one in it and so constantly the subject of conversation among nautical men, it may be as well to make some allusion to the unsatisfactory state of the relations existing time out of mind between that service and the royal navy. It arises chiefly from the irregular mode of men being taken out of the ships by the latter, and the want of defined orders to naval officers as to the powers they have in aiding merchant ships in cases of mutiny or disorder arising in them when out of the reach of civil authority. In this state of things some officers will do too much and others, fearing the press or civil action, will do too little, perhaps, indeed, nothing, and danger to life and property ensues in consequence.

Previous to the year 1815 a man-of-war was looked upon with aversion, men being then taken by force—a measure no doubt justified by necessity; and when appealed to in cases of mutiny the merchant ship would lose her best men and receive in exchange some of the most useless and worst characters of the man-of-war, who sometimes dealt most severely with the offenders, as they generally deserved. But in these days when the press virulently assails the least show of arbitrary power, and it is the fashion to decry even necessary authority, discipline everywhere has become more or less relaxed, and naval

officers seem now to be afraid of acting or interfering with the merchant service in cases where they would otherwise render essential assistance.* In framing the Merchant Shipping Act, it is surprising that the shipowners, who are not destitute of influence in parliament, should have allowed such a clause as 214 to be inserted, as to their men volunteering for the navy; and though by clause 217 the expence they are put to would seem to be mitigated, yet owing to the troublesome forms in settling these small matters we never hear of owners getting compensation.

There would appear to be no reason whatever why seamen of the navy should not be sent out to complete the crews of ships of war on the same principle as recruits are sent out to the army; or, if permitted at all, the volunteering system should be placed under proper regulations. For on the present plan, admitting that the royal service should be paramount, as that of the merchant requires its protection and support, a ship has upwards of twenty men taken out of her, to the detriment of the ship, the annoyance of her officers, and to the injury of the owner's interests: another loses one or two to the ship of war. Now would not a proportion of men from each according to tonnage be the fairest plan, and save besides a great deal of ill feeling between the parties immediately concerned. The merchant Captain has no redress, unless he can obtain it from some considerate Commo-

* Appearances have of late gone against the mercantile service of the United States in the point of treatment by their officers, &c., and failing to obtain justice, here is something of the result. We find the following in the papers of the day:—

A correspondent of the *Panama Star* writes from Callao:—We have had several serious disturbances on board of American ships. The Mate of the *Morning Star* was stabbed by one of the men while getting the ship under weigh, the rest of the crew drawing pistols, knives, &c. The Captain half-masted his flag, when two armed boats from H.M.S. *Monarch* went to his assistance and put the disaffected in irons. Another mutiny occurred on board the *Oliver Jordan*. The crew drew pistols and knives on the Mates; the *Monarch* again sent armed boats, and, at the Captain's request, put seven of the ringleaders in irons. On the 25th July the *Electric Spark* arrived with the crew in a state of mutiny. They had had possession of the ship for two weeks, committing all kinds of outrages and using abusive language to the Captain. The Captain informs me that for two weeks he had to subsist upon preserved meats and anything else that he could find in the cabin, the cook and steward having refused to cook any victuals for him. Immediately upon his arrival here he obtained assistance, and had all the crew put in the castle; but, as there are no means of punishing them here, I suppose that in a few days they will be liberated.

We quote this to show that our naval officers know and fulfil their duty to a certain extent even on board foreigners. And it would have been well for the late Master and Mates of the *Martha and Jane*, now under sentence of death, if a ship of war had come across that vessel before their disgusting cruelties had gone to the extent which they did. Perhaps it is as well that it was not so, or the merchant service would not have been rid, as it now is, of officers who were a disgrace to it. They were surely of the very lowest class and distinct from those noble minded officers, some of whom it is our good fortune to know, the bright examples and ornaments of their profession.—Ed. *N. M.*

dore or Admiral, if he should happen to be at hand to appeal to. The practice now is, whenever any of the crew wish to enter into the navy, that a blue shirt is hoisted by one of them to the fore topsail yardarm. This is considered a private signal for the man-of war to send her boat for men. It is a most irregular proceeding and tends to encourage the crews of merchant ships in insolence to their officers.

It is surprising too that in the late petition of the officers of the merchant service to parliament, the whole of their grievances on this subject were not set forth. This is a complaint which does not affect steamers so much as the sailing vessels, as, having government contracts, they come more under the protection of the naval authorities, and the petition alluded to, emanating from Southampton, so far as it goes is quite correct. Still a practicable code of maritime laws should have been a leading feature in it, as all the petitioners must know that they have not sufficient authority over their crews for the purposes of safety to life and property, and that all maritime offences should be brought to maritime courts and be tried by maritime people alone, excepting capital crimes, which might be left to a jury.

Although having no longer any personal interest in these matters, having left off going to sea, yet I consider it the duty of every one who has had the benefit of long experience in these matters, to point out to those who have the power, the immense good they might do towards the saving of lives and property, by merely taking some little trouble to become acquainted with the true state of things over which they have control, and which they desire to see properly regulated; besides the satisfaction they would enjoy and the lasting honour they would gain by removing evils which have so long been our disgrace as a maritime nation.

I am, &c.,

TRIDENT.

To the Editor of the Nautical Magazine.

PRIVATEERING IN THE WEST INDIES,—*During the War.*

(Continued from page 463.)

After Captain Love's capture, the frigate anchored in Cumberland Harbour, Cuba, and the Hon. Lieut. was sent out in the schooner he had taken, to cruise along the coast to the eastward. His first object was to ascertain whether Love's privateer was in any of the small harbours situated between the frigate's anchorage and Cape Maize. Love had assured him that she mounted 14 guns, and was manned with a crew of 100 desperate fellows. Formidable as this vessel was in comparison with the schooner having a single carronade and forty men which the lieutenant commanded, it did not deter him from seaching diligently for her. He was rewarded for his pains; he found

her, as reported, moored in Escondido, or Hidden Port, a few miles to the eastward of Cumberland Harbour. The privateer confident in her strength lay broadside to the channel which led to this snug "sea lake," as Dampier would have called it. Laying his vessel close as the depth of water would admit, the lieutenant engaged her for some time, with the hope of knocking away her masts, or disabling her in some way or other: but ineffectually. Considering that the boats might prove more successful, he returned to the harbour where the frigate lay, and reported the circumstance to the captain.

The ship was soon under way, and on arriving off Escondido at the close of day, the boats, well manned and armed, as soon as it was dark, were despatched under the command of the first lieutenant, William Breame. The night was dark, and the weather calm; and to prevent any notice of the approach of the boats, the oars were muffled, and the strictest silence enjoined. Considering the force of the vessel to be attacked, the enterprise promised to be desperate; but this only gave a stimulus to the spirits of the assailants. The difficulty lay in the approach to such an intricate place of concealment; but that did not discourage or damp the ardour of the officers or men, for well they knew that once alongside of their object, the issue would not long be doubtful.

The gloom, however, was so great, and the entrance to the inlet so small, that it was late before they found it out; and even then all their endeavours to hit the navigable channel failed! The entire space appeared to be filled up with coral shoals and patches, giving rise to doubts and perplexities. It was judged that the boats were within the points of entrance; but they grounded incessantly: clearing one obstruction they ran upon another; and although the shoving the boats off the rocks was performed with as little noise as was possible, yet it was apprehended that, from the stillness of the night, the enemy could not fail to become apprised of their approach. So it proved. For, whilst thus employed, they were suddenly saluted with a heavy discharge of musketry *from each side*, and a broadside from the schooner within! Here was a dilemma!

Well might the officers feel the awkwardness of their unexpected situation,—it was galling in the extreme: and though the most strenuous exertions were used to push the boats over the obstructions in the direction of the privateer, and towards the land on either side with a hope of getting into the channel, they did not succeed, as, unfortunately, they had got upon the shoalest part of a coral patch, and their attempts only served to make the matter worse!

Under these untoward circumstances, and whilst the seamen were busily employed in endeavouring to extricate the boats, the marines were directed to return the fire of the invisible enemy on both sides of them. Fortune, however, was unpropitious, the characteristic perseverance of the tars was of no avail, and as they began to fall from the effects of the cross fire, all hopes of getting the boats over were abandoned, and the gallant commanding officer was constrained, very much against his will, to order the retreat. This distressing alterna-

tive, after incredible labour, the men being obliged to get on the rocks and lift the boats, was at last effected. "They deserved success, but could not command it!"

The cutter, commanded by Mr. Guthrie, (acting master,) succeeded, in consequence of her light construction, in getting over the shoal, and was gallantly pushing for the privateer, when she was brought up, not by a shoal, but by a hawser, which the wily rovers had stretched across the inner part of the channel of entrance. All his exertions to cut or pass it were ineffectual, and he was compelled to retreat with the rest of the boats.

To have attacked in the day a privateer of such force and so well manned, with the boats of a single ship, would not have been justifiable; the loss of valuable lives, from the bush parties alone, would have been great, whilst the object to be gained was comparatively insignificant. She was in a situation to have defended herself against treble her number, as the channel is so narrow, and bordered with bushes and shrubs, that a bush-party of twenty men would be sufficient to pick off half the assailants before they could arrive at the anchorage. At all events, had it been practicable without a dreadful waste of life, assuredly it would have been effected by the Captain of the frigate, (Henry Whitby,) for a more gallant spirit never breathed.*

The disappointment, as may be supposed, was very keenly felt both by the officers and the men, who had not been accustomed to failures of this sort; but being entirely unacquainted with the impediments of the place, they had not calculated on anything but success. After the return of the party, at daybreak, the frigate was worked up close to the weather point of Escondido, where the privateer lay, like a spider in the midst of her snare, and opened a heavy fire from the quarter-deck guns upon her. She soon warped out of sight; and I believe sustained little, if any, damage, as only a part of her masts could be seen from the frigate's deck.

In this unfortunate affair, the Serjeant of Marines (Mulholland) and a seaman were killed; Lieut. Pakenham (a ball through each arm) and several men were wounded. The privateer belonged to Capt. Love, who, having directed their plan of defence, matured for any similar occasion, before quitting his vessel, calculated accurately on the ill-success of the attempt to cut her out. He assured the officers that no man but himself could succeed in the attempt, and with much energy pleaded against the trial,—to prevent, as he said, a useless effusion of blood. His advice, as I have shown, was disregarded, as all on board considered that the honourable feelings of humanity did not actuate him in this instance; but that his motive sprang from an apprehension of the result proving unfavourable to his interests, well knowing, as he acknowledged what gallant exploits British seamen were capable of performing.

A very gallant little affair occurred whilst the frigate lay in Cum-

* This was the opinion at the time on board the frigate. With the boats of another ship the daylight would have answered best.

berland Harbour: a midshipman—Dennis Murray—was sent in the jolly-boat, with four lads, to board a schooner coming in, which proved to be a recapture of our armed tender under Lieut. Pakenham. Just after quitting her, a small felucca privateer made her appearance round the point, within a short distance from the boat; the Mid commanding her immediately gave chase, notwithstanding the disparity of force. A running fight ensued, which continued until eleven o'clock at night, when Dennis and his four lads resolutely boarded the enemy just as he had run his little craft on the rocks; the crew, surprised at the intrepidity of our little party, and suspecting that a man-of-war must be within the harbour, jumped overboard and swam towards the beach, or rather cliffs, which margined the shore. As the vessel was fast, our Mid and his gallant followers plunged into the water after the fugitives, and hostilities were absolutely renewed in that element!—sometimes swimming with one hand and fighting with the other!—and where the depth was not too great, wading. This singular contest continued until the combatants reached the shore, when such of the privateersmen as were not badly wounded sought safety from their juvenile pursuers in the depth of the forest. Seven were taken prisoners, one was killed, and most of them wounded: those who escaped probably joined Love's privateer at Escondido, which was only a few miles to the eastward. The prize was brought in triumph to the frigate: she mounted one gun, several swivels, and some musquitoons.

The next day two row boats, piccaroons, were captured; these craft had on board bale goods, nankeens, silks, &c., which had been plundered from some American vessel. There is little doubt, if the circumstances of this case could have been fully investigated, that the parties concerned in the robbery deserved to be hanged on the score of piracy, with as much justice as the notorious Capt. Kidd, or any other seawayman who suffered death for his villany.

I shall now advert to a startling episode in the career of our famous sea rover, Capt. Love, which will give a clearer insight into his extraordinary character than his mere exploits performed on board his privateer. Some weeks after he was captured, a serious conspiracy was discovered among the prisoners of war on board the frigate, which had for its object the securing or murdering the officers and crew, and the seizing of the ship!—a large frigate of 38 guns and about 250 men, be it remembered! Extraordinary as this project may appear, preparations were actually making for putting it into force! Fortunately, however, for both parties, the scheme (like many other deep laid ones) was accidentally discovered, and frustrated. The discoverer was a black man, one of the carpenter's crew: he was a steady, intelligent, and useful man, and it was his practice in evenings after working hours, to set his tools on the grindstone which was kept within the manger-board. Upon several occasions he met two or three of the Spanish prisoners there, employed in sharpening their knives, and which, after the second time, they attempted to conceal from his view. At first he paid no attention to the circumstance; but its frequent re-

currence excited his suspicions as to their purpose; and as he understood and spoke Spanish, he determined to sift the matter. To this intent, he one evening secreted himself sufficiently near to overhear their conversation without being seen by them. A short time put him in possession of the secret: their sharpeners of the knives, who appear to have been chosen men, but not very discreet, were heard to say, that as Capt. Love was to head the enterprise, they had no doubt of soon possessing themselves of the frigate, and that nothing was easier than to *cut the throats* of the officers and crew when asleep! This was to be effected whilst the ship was at anchor, there being then but a quarter watch on deck. The black carpenter stole from his place of retreat, and immediately acquainted the officer of the watch with the conversation he had overheard. The captain was instantly informed of it, and he directed that Love should be put in irons and placed under the eye of the sentinel at the cabin door, and the knives of the prisoners taken from them. These orders were forthwith put into execution.

The next morning the hands were turned up under arms, and the whole of the prisoners, with their daring leader, mustered on the quarter-deck. Love, on being charged with the intention of heading a conspiracy against the captain, officers, and crew of his Majesty's ship, peremptorily denied any knowledge of it! He appealed in eloquent and forcible language—sufficient, indeed, to have convinced a less discerning man than our captain—on the absurdity of an attempt of that sort, with no more than fifty or sixty men, and those for the most part Spaniards; and assured the captain and officers that although he had in his lifetime performed some strange actions, yet he was "not mad enough to undertake so desperate, ridiculous, and barbarous an enterprise. Sir, (he continued to say, addressing himself to the captain,) you have caused me to suffer an indignity (that of being put in irons) which was never before offered to me; treat me, sir, with that lenity with which I have always treated your countrymen when my prisoners,—this is all I ask of you; I solemnly disclaim having had any intention of participating in the murderous plan just described." Our orator certainly delivered his address in the most dignified manner, and although he appeared in earnest, yet he was perfectly collected and cool. Notwithstanding, however, all his protestations of innocence, his eloquent appeal, and lofty style, there was little doubt entertained of his having been the instigator of a plan for seizing the ship in some way or other, and as this could not have been accomplished without first getting rid of the officers and ship's company, it could not be considered unjust or unreasonable to conclude that the plan stated by the Spaniards was that by which he intended to attempt the execuiton of his wishes. But enough of this dark deed—in that

"Sparta hath many a worthier son than he!"

From the restless disposition of our celebrated hero; from his uncon-

querable aversion to inactivity, and an ardent desire to shine above all competitors for fame in the line of life he had chosen, I conclude that it was not alone the desire of effecting his liberty that actuated him on the above mentioned occasion. Had he succeeded in getting possession of the frigate, he would have performed an unparalled action in every sense, and, consequently, he would have stood in his capacity of rover among his compeers without an equal!

Before the transpiration of the conspiracy, Capt. Love had messed with the midshipmen, and expressed himself not only satisfied with the treatment he met with, but spoke highly of the liberality exercised towards him by the captain of the frigate, who he pronounced to be one of the smartest seamen and active commanders he had ever met with, an opinion he was every way qualified to give. In fact, so satisfied did he appear to be, in accordance with his declaration of being "quite comfortable," that I never saw a man more gay and happy under any circumstances. Yet, at this very time, if we are to credit the account of the Spaniards, he had commissioned a dagger for each heart! and if so—how well practised must have been the duplicity of the desperado!—under what a light heart and cheerful countenance he hid the most treacherous and sanguinary designs! Verily the nature of man is a mystery!

Among other strange things in the adventures of his roving life, with which Love used to amuse us, was that of his having in almost all the Spanish islands, and the principal port towns of Spanish America, a wife, a house, slaves, &c.! and he assured us that the amount of his property was so great that, like Simon Taylor, of Jamaica, he could not correctly calculate it! He found it, he said, a very agreeable thing to have a home wherever he went, and that in every place he was caressed because his means enabled him to assist the needy, and to keep up a splendid establishment; thus making things agreeable to all classes. If at any time he met with ingratitude in lending money to those who never returned it, it gave him no concern,—another cruize replenished his coffers,—he held Fortunatus's purse,—and as he always laid it down as a maxim applicable to the people with whom he dealt, that a sum lent was a sum lost, he never felt annoyed at the occurrence; yet he would be doing injustice to the Spaniards of Old Spain if he did not add, that he found *them* generally very honest in all pecuniary matters: it was to the *Creoles* he particularly alluded.

The inconsistency of human nature is proverbial; the cupidity of the mass of mankind is unbounded,—pretending that his wants are little—a man exerts body and soul in the attainment of that little: but when reaped, he still finds that he wants more! His avarice is never satisfied; and although his experience tells him that gold will not purchase happiness, he nevertheless harasses himself in thoughts by night, and pursuits by day, in the accumulation of it, unconscious all the while that the blessing he seeks centres in the mind! Our hero, in the possession of such riches by which he might derive all the comforts, and purchase all the luxuries of this world, it seems extra-

ordinary that he should, notwithstanding, court a life of such constant inquietude—a life subject to privations of every kind—and fraught with peril and vexation! A mind absorbed in avarice—an eye that could never be satiated with the sight of gold,—might doubtless account sufficiently to those not knowing the character of this enterprising rover, for the constancy with which he pursued his restless career. But Love was of a very different stamp; indeed, he was the reverse; he was prodigal to a proverb with his money;—among the privateersmen—"to be as generous as Capt. Love,"—was often applied to others as a compliment. No man is without self-love, and therefore self-interest; the one and the other seem to be innate though variable in intensity in individuals; often latent, and sometimes slow of development: and subjected to restraint and even inaction by the will and the benevolence of the heart. We heard many accounts of this extraordinary man's generous actions, and the facility with which it was possible for almost any individual, either really distressed, or assuming a condition of want, to obtain money from him; and the treatment he exercised towards his English prisoners was so generous and humane, that it obtained for him, in turn, such attention as is shown to the officers of the regular service belonging to the enemy, when prisoners of war, until the unlucky conspiracy.

The accounts of Love's escape in the former part of the war, were so various and contradictory on this station,—some marvellously wrought up, even to the assertion that he had absolutely vanished—faded away into a shadow of thin air,—that we were very desirous of learning the truth from his own lips. The old stagers will remember that our rover was captured by, I believe, the *Thetis* frigate, and sent to England in H.M.S. *Proselyte*, before the peace of 1802. He had himself often listened to the tales told of his escape, and laughed heartily, though he did not wonder, at the air of mystery thrown around the circumstances, or at the supposed league which he was roundly taxed with having entered into with the "Old Gentleman in Black," as, in truth, his sudden disappearance—there one minute and gone the next—and no clue being found to his retreat, must have called up the magic lantern of superstition. But the mystery lay in his spirit—to dare,—and the magic—in gold!

There happened, he said, to be a French officer, his fellow prisoner, on board, a resolute and active man; and the very night after the frigate had anchored in Plymouth Sound, this gentleman and himself contrived, whilst the captain's cabin was unoccupied, to get into the jolly-boat that was suspended astern, and gradually and silently lowered it down into the water, allowing her to drift with the tide until out of sight of the ship, when they pulled to the nearest shore undiscovered! The commander of the frigate, and some of the officers, had gone on shore; many visitors, among whom were the wives of the sailors, had come on board, and the whole crew were excited and as merry as crickets; the sentries, unable to resist the general glee, were very remiss, and probably had lost all recollection of the two prisoners.

This instance of taking prompt advantage of circumstances, places

Love's character in a clear light: it was impossible to reflect on the event without admiring the skilfulness and success of the action, however much we had now reason to be displeased with the man. Energy was his *forte;* and it was one of his remarks, that a man who embarked in a hazardous course of life should never "let his head go a wool gathering." It was also his frequent remark, in that jocular strain of expression used by buoyant spirits, and which he knew so well how to employ, that,—in the last war, when his health was declining from the effects of a tropical clime, we had humanely sent him to England to recover it; and, he supposed it was our intention to perform the same friendly act towards him at this time;—but, he added, always with great earnestness, as if confident of his power to effect his resolve, that—as his inclination at present was not for a change of climate, he would lay a bet with any one among us, that before he was a month in Port Royal Harbour he would take "French leave;" and if he lost, he would most punctually cause the sum at stake to be paid to the winner. How little was it suspected at this time that his words would be verified!

Many an English midshipman has escaped from the interior fortress of Biche in France, under very extraordinary circumstances; and so unaccountable did these repeated flights appear to the guards and the authorities, that they ranked the British Middy with the chief artist in necromancy; and declared to Fouché, that whilst a single individual among the genus could draw breath, neither walls, bolts, nor sentinels could possibly be security against the chance of his escape. But I shall show that Capt. Love eclipsed their doings, and stood—as assuredly he did—the first of privateersmen—the very Highman Palatine in the art of deception,—a conjurer far exceeding the Hindu who sits cross legged upon nothing in the air.

Whilst stretching over to Cape St. Nicholas, at the West end of St. Domingo, we fell in with H.M.S. *Bellerophon*, of 74 guns, Commodore J. Loring, on her return to Jamaica from a cruize; and availed ourselves of so good an opportunity to get rid of our troublesome guest —Capt. Love.

Sir John Thomas Duckworth, the naval Commander-in-Chief, being fully acquainted with Love's enterprising and resolute character, had on the first intimation of his capture resolved that especial good care should be taken of so "slippery a gentleman;" but the gallant old Admiral had a deeper schemer than himself to deal with,—besides, there was the talisman of the "goose which laid the golden eggs" in possession of the arch rover, and being invisible, was proof against shackles, insular prisons, soldiers, guns, and bayonets, as the sequel will show.

On the arrival of the *Bellerophon*, Love was sent, by order of the Admiral, to one of the prison ships lying off Fort Augusta on the northern side of the harbour, with orders that the prisoner should be put in irons, and have *two* guards or sentinels placed over him—a precaution hitherto unpractised, and as an additional security, a captain of one of the regiments that did duty on board the prison ships was

sent down from Kingston to take the command, with a subaltern under him, to prevent the possibility of the enterprising rover's escape. But it appears that notwithstanding all these prudential measures, which, had they been exercised for the security of an ordinary prisoner, would have appeared not only extraordinary, but needless—this *rara avis* got clear off! And what is really singular, not only with the irons on, but with the sentinels who were placed to guard him, without any other person on board the ship knowing it; and without the Admiral, or any other officer, notwithstanding diligent and immediate search and inquiry, being able to trace how he had effected his escape, or whither he was gone. In this instance, as in the former, he seems to have vanished suddenly!

The circumstance created a great sensation at Port Royal and Kingston, not only in the fleet, and in the army, but among the whole community: but the impression of surprise was not so great in the minds of the officers of the frigate that had captured him,—they were prepared to hear of some event out of the common course of prison adventure, although regarding his boast of escaping from durance as a mere wish, without the probability of realization. The escape of this wonderful man, however, does appear very marvellous, the more especially as such seemingly secure measures were adopted for the better retention of his person.

I do not recollect the result of the investigation of this mysterious affair, or indeed if any court of inquiry was held to inquire into the circumstances; but I think we may reasonably conclude that our hero must have commanded his success by gold, aided by the good luck which hitherto seemed to have been his constant attendant. Indeed, his career appears a succession of romances of real life, unparalled in the annals of privateering, and the actor himself, a character unsurpassed in his particular sphere!

It is probable, in the first place, that he had some friend or friends in Kingston, among the numerous foreigners who sojourned in that widely extended city, and who provided him with the boat or canoe that transported him and the worthless soldiers (Germans, if I recollect rightly,) who were stationed over him to the shore,—and, it is barely within the line of probability that he effected his escape without the knowledge of the other sentinels. Gold, and flattering promises, no doubt seduced his guards; but that they should get clear of the island without leaving a trace of themselves behind, is indeed "passing strange."

I do not know whether the officers on guard the night of his escape were blamed, but we may readily conceive their surprise and mortification when daylight appeared and discovered to them the flight of their charge: nor can we well imagine a more unpleasant situation for officers of responsibility to have been placed in. The wonder will be increased when we find that independent of the military guards on board the hulk, a boat from one of the men-of-war "rowed guard" round the vessels in the harbour, and especially those having prisoners of war on board. Besides, there were sentinels on the walls of Augusta,

or, as it was usually called, Musquito Fort, close to the position of these vessels! These circumstances make the escape of our noted hero the more surprising; but remind us,—if the old saying be true, that "bars, bolts, and locks are no security against thieves," neither are ships, shackles, soldiers, row-boats, and fortifications sufficient guarantee of the safe custody of a resolute and determined prisoner of war with money at command. The escape of Napoleon from Elba was thought a great feat; but compared to what Capt. Love effected, or even with the light-footed nocturnal escalades and successful evasions of the British midshipmen from the fortresses of France, it dwindles down to a matter of easy accomplishment: and I feel persuaded that if such a man as our rover had been in the place of the fallen Emperor at St. Helena, not all the precautions of a Hudson Lowe would have prevented him from disappearing from the rock! Had the "great captain," the setter up and deposer of kings, the "scourge of Europe," had a knowledge that such a surprising seaman was serving in an obscure situation under the national banner among the islands of the Caribbean Sea, and introduced him into a high station in the royal marine, he would have reaped an advantage eminently greater than any he derived from the skill and bravery of his more legitimate sea officers; and I have not the least doubt that as "Admiral" Love our hero would have immensely surpassed the Jean Barts, Thurots, Du Guay Troirs, &c., of the eighteenth century; and have turned some of the severe conflicts of the Revolutionary war into very doubtful victories; and in paying him this compliment, I do not rob our own gallant sea officers of a single iota of the merit which they have displayed, and which is their due.

(To be continued.)

Decret Disciplinaire et Penal pour la Marine Marchande.

Louis Napoleon
President de la Republique Francaise
On the Report of the Minister Secretary of State for the Marine and the Colonies
The Council of the Admiralty agreeing
Decreed

Preliminary Regulations (Dispositions).

Art. 1. The infringements which the present decree punishes with penalties are breaches of discipline. Those which it punishes with correctional penalties are offences. Those which it punishes with afflictive or infamous penalties are crimes.

Art. 2. The offences against discipline and others included in the present decree shall be judged and punished conformably to the terms which it directs. The crimes alluded to herein shall be judged by the ordinary tribunals and punished conformably to the terms of this de-

cree. Those transgressions, offences, or crimes not included in the present decree shall be dealt with by the ordinary tribunals.

Art. 3. The terms of the present decree apply to all French ships and vessels, whether belonging to individuals or public companies, that are employed in navigation, or in the fisheries within the limits of the maritime inscription, excepting always boats of the customs. All persons embarked, employed, or received on board these ships and vessels, under any denomination whatsoever, from the day of their inscription on the list of the ship's company, or of their embarcation for the voyage, until their disembarcation are subject to all rules and regulations whatsoever established in ships and merchant vessels, and are liable to the penalties awarded by the present decree.

Art. 4. All persons included in the preceding articles shall continue to remain subject to the conditions which it provides in case of the loss of the ship by wreck, the chances of war, or any other cause, until they are delivered over to a French authority. Nevertheless, this regulation shall not apply to passengers, unless they be shipwrecked seamen, deserters, or stragglers, who by virtue of a French authority shall have been embarked for the purpose of returning to their country, unless such passengers agree to join the ship.

Chapter I.—Of the Jurisdiction.

Art. 5. The right of cognizance of all offences against discipline, and of awarding the penalties herein provided for them in this decree remains without appeal and subject to no revision. It is addressed:—1st, to the Commissaries of the Maritime Inscription; 2nd, to the Commanders of ships of war; 3rd, to the Consuls of France; 4th, to the Captains commanding merchant ships in foreign roadsteads; 5th, to the Captains of ships.

Art. 6. The exercise of this decree shall be as follows:—

When the ship is in a port or roadstead of France, or in a port of a French colony, the exercise of this decree shall be invested in the Commissary of the Maritime Inscription; to whom the complaint shall be addressed by the Captain.

In the roadstead of a French colony it shall appertain to the Commander of the ship of war there present, or in his absence to the Commissary of the Maritime Inscription. The Captain of the ship shall address his complaint to the one or the other accordingly. The Governors of the French colonies will define by their orders the limits of the roadstead or port.

In the ports and roadsteads of foreign countries the exercise of this decree shall belong to the Commander of a French ship of war, or in his absence to the Consul of France. In the absence both of a ship of war and the Consul, the same shall be exercised by the senior Captain in the merchant service. The Captains of foreign-going ships will always in these cases take precedence of the Master of any vessel in the coasting trade.

At sea, or in places where none of the above-named authorities are to be found, the Captain of the ship is authorized to exercise this decree and to carry into effect its provisions for discipline, reporting

the same either to the Commissary of Maritime Inscription, the Commander of the ship of war, or to the Consul at his first port of arrival.

Art. 7. In all cases, and wherever the ship may be, the Captain, Master, or commanding officer is authorized to inflict the penalties of discipline comprised in Art. 53 of this decree without reference to the authorities mentioned in Art. 5, but is afterwards to render an account thereof with the least possible delay.

Art. 8. In cases of dispute as to competency in the exercise of this decree, it shall be decided in the ports and roadsteads of France by the Maritime Prefect of the Arrondissement, and in the ports and roadsteads of a French colony by the Governor.

Chapter II.—Of the Jurisdiction in Cases of Maritime Offences.

Art. 9. It is constituted by the Maritime Commercial Tribunals that they take cognizance of maritime offences provided for in the present decree.

Art. 10. When the ship is in a port or roadstead of France, or in a port of a French colony, the cognizance of offences belongs to the maritime commercial tribunal presided over by the Commissary of the Maritime Inscription of the place. In the ports and roadsteads of foreign countries, the cognizance of offences belongs to the maritime commercial tribunal, presided over by the Commander of the ship of war present at those places, and in his absence the tribunal to be presided over by the Consul.

Art. 11. The cognizance of common offences not provided for by the present decree belongs to the correctional tribunal of the arrondissement where the ship is, or of the first French port at which she may arrive.

Chapter III.—Organisation of the Maritime Commercial Tribunals.

Art. 12. On board a ship of war the Maritime Commercial Tribunal shall be composed of five members, viz.: the Commander of the ship, President; the officer of the ship next in rank to the second in command, or in his absence the second himself; the oldest of the Captains, the oldest of the officers, and the oldest of the boatswains of the the merchant vessels present in those places. The tribunal not to be formed without the authority of the commanding officer in the roads.

Art. 13. If there be no other merchant vessel in the roads than that to which the prisoner belongs, the tribunal shall be composed in the following manner, viz.: the Captain of the ship of war, President; the two oldest officers of the ship next to the Captain; the oldest Second-Master; an officer or seaman *(matelot)* of the ship on board which the offence was committed.

Art. 14. In a port of France or in a French colony the Maritime Commercial Tribunal shall be composed of five members, viz: the Commissary of the Maritime Inscription, President; a Judge of the Tribunal of Commerce, or in his absence the Juge de Paix; the Cap-

tain, Lieutenant, or Master of the port; the oldest of the Captains of all the merchant vessels then present; the oldest of the boatswains of the merchant vessels, or the oldest able seaman present who has done that duty.

The Judge of the Commercial Tribunal shall be nominated by the President of that tribunal.

In the colonies where the Captain may be superior in rank to the Commissary of the Maritime Inscription, or senior to him in the same grade, the Captain shall be substituted by the agent which shall next follow him in the order of service.

The Captain and the boatswain shall be nominated by the Commissary of the Maritime Inscription.

The tribunal shall only assemble by the authority of the chief of the maritime service present in those places.

Art. 15. In a foreign port and in the absence of a French ship of war the Maritime Commercial Tribunal shall be composed of five members, viz.: the Consul of France, President; the oldest of the Captains of the foreign voyage merchant vessels present there; a French merchant named by the Consul; the oldest of the officers of the merchant ships present; the oldest of the boatswains.

Art. 16. The president shall name the member of the tribunal who shall fill the office of reporter.

Art. 17. The functions of Secretary in a ship of war shall be performed by the officer of administration or in a foreign port by the chancellor *(chancelier)*, or in his absence by an employé of the consulate.

Art. 18. The following persons shall not be members of the Maritime Commercial Discipline Tribunal, viz: 1st, the Captain who brings the complaint; 2nd, any other person on board the vessel who is the offended or complaining party.

Art. 19. The President of the Maritime Commercial Tribunal shall not be under twenty-five years of age, and the other members shall be at least twenty-one.

Art. 20. Parents or relations to the degree of uncle and nephew inclusively shall not be members of the same Maritime Commercial Tribunal.

Art. 21. The relationship as fixed by the preceding article between one of the members of the tribunal and the prisoner shall likewise be a cause of rejection.

Title II.—Of the Form of Proceeding.

Chapter I.—Of the Form of Proceeding in the Matter of Faults of Discipline.

Art. 23. The Captain shall keep a special book, called the "punishment-book *(livre de punition)*, in which every fault of discipline shall be recorded by him or by the officer of the watch. The deciding authority shall inscribe his decision in the margin. The Captain shall note in the same manner, in the punishment book, the penalties

of discipline inflicted during the voyage. The punishment-book shall be inspected and initialed by the Commissary of the Maritime Inscription when the vessel is fitted out. It shall be remitted to the Commissary of the Maritime Inscription at the port where the vessel is officially discharged.

Chapter II.—Of the Form of Proceeding in the Matter of Maritime Offences.

Art. 24. Whenever an offence is committed on board the report of it shall be made to the Captain by the next in charge, or the officer of the watch. If the offence has been committed out of the ship the commanding officer shall report it to the Captain. The circumstances of the offence shall always be mentioned in the punishment-book.

Art. 25. The Captain, assisted by the officer who makes the report, and who performs the duty of clerk, proceeds to a summary information, receives the deposition of witnesses and completes the circumstances *(procès verbal)* of the whole case. The *procès verbal* is signed by the witnesses, by the Captain, and the officer performing the functions of clerk.

Art. 26. If the offence has occurred in a port or roadstead of France, or in a French colony, the Captain shall address his complaint, &c., to the Commissary of the Maritime Inscription within three days after it has been proved. If in the roadstead of a French colony, he shall address himself to the Commander of a ship of war, or in his absence, to the Commissary of the Maritime Inscription. If the offence has occurred in a foreign port, he shall address himself to the Commander of the French ship of war, or, in his absence, to the Consul of France. If the offence has been committed either at sea or in a foreign locality where there is neither French ship of war nor a Consul of France, the Captain shall make his complaint in the first port he arrives at, either to the Commissary of the Maritime Inscription, the Commander of the ship of war, or the Consul, conformably to the terms of the present article.

Art. 27. When the person accused of any of the offences expressed in the present decree shall be the Captain of the ship, the proceedings shall take place on the complaint of the officers, ship's company, or passengers. In the first case the complaint shall be brought, within the time prescribed by Art. 26, to the Commissary of the Maritime Inscription, to the Commander of the ship of war, or to the Consul, according to the circumstances provided for by that article.

Art. 28. The authority charged with the complaint shall name the Maritime Commercial Tribunal which is to take cognizance of it, shall name the reporter, whom it authorises to take immediately the necessary informations, and shall convoke the tribunal as soon as the affair is sufficiently arranged.

Art. 29. The sittings of the Maritime Commercial Tribunals are public; their order is the care of the President. On shore the tribunal is to assemble either at the office of Maritime Inscription or at the

office of Chancery *(Chancellerie)*, according as convenient. On board ship the tribunal shall assemble in the same place as in the case of a council of war.

Art. 30. At the opening of the sittings, the President shall place on the table a copy of the present decree. He shall then say with a loud voice to the members of the tribunal, who are, like himself, standing up and uncovered,—"We swear before God to fulfil our duty at the Maritime Commercial Tribunal with impartiality." Every member will answer, "I swear it." Mention is made of this formality in the *procès verbal.*

Art. 31. The President orders the Reporter to read the complaint, with the proceedings on both sides. The accused is afterwards placed before the tribunal. He may appear alone, or assisted if he wishes it by an advocate of his choice.

Art. 32. The President, after stating his identity, acquaints the accused with the offence for which he is brought before the tribunal; he warns him, as well as his advocate, that he is permitted to say all that he may judge useful to his defence, without however exceeding the bounds of decency and moderation, or of the respect due to the principle of authority.

Art. 33. The President is invested with a discretionary power over the direction of the debates and for the discovery of the truth. The accused may call any one he desires to be heard; nevertheless, the delay of a witness is not to stop the debates.

Art. 34. The President shall interrogate the accused and receive the depositions of the witnesses. Each member of the tribunal is authorised to put questions to the accused or witnesses by permission of the president. The accused makes his defence either by himself or by his advocate. The President, after having asked the accused if he has anything more to add in favour of his defence sums up the proceedings without giving his personal opinion.

Art. 35. After the closing of the debates the President shall order the accused to retire, also the audience, for the purpose of deliberation. The members of the tribunal shall give their opinion in the reversed order of the classifications mentioned in Arts. 12, 13, 14, and 15. The President shall give his opinion the last.

Art. 36. All the questions involving culpability put forward by the President shall be carried or not by the majority of the tribunal. If the accused be declared guilty, the tribunal shall deliberate as to the application of punishment.

Art. 37. If the act appears to be within the category of breach of discipline, the tribunal can only pronounce one of the penalties provided for by Art. 52 of the present decree.

The declaration of the tribunal shall be appended to the proceedings.

Art. 39. The judgment shall be drawn out in triplicate; one copy of which shall be preserved for the minutes and retained by the clerk, signed by the President and members of the tribunal.

Art. 40. The President shall write below the judgment "Be it

executed according to its form and tenour;" and he shall take the necessary steps to ensure its execution.

Art. 41. When the judgment is delivered in France, and involves the punishment of imprisonment, the culprit shall be sent without delay to the disposal of the Procureur of the Government, who shall carry the sentence into execution. When the punishment of imprisonment pronounced out of France does not exceed three months, the culprit shall undergo it either in France, or in a French colony, or in the foreign country where the judgment has been given.

Art. 42. The sentence of punishment decreed out of France against the Captains of ships shall not be undergone by them till their return to France.

Art. 43. The payment of fines pronounced in virtue of the present decree shall be made in the ordinary forms by the Receiver of the Customs of the place where the ship is cleared. This demand is made at the request of the local maritime authority. If the culprit be discharged in a foreign port, the Consul is to obtain the payment of the fines.

Art. 44. A copy of the judgment is to be addressed to the Minister of Marine.

Art. 45. The judgments of the Maritime Commercial Tribunals are not subject to any appeal or revision. Nevertheless, the Minister of Marine is empowered in cases provided for by Art. 441 of the Code of Criminal Instruction to transmit to the Minister of Justice, to be referred to the Court of Cassation in the interest of the law, those judgments which are susceptible of being annulled by the violation of Arts. 12 to 20, 29, 30, 31, and 35 of the present decree.

Art. 46. The proceedings before the Maritime Commercial Tribunals are not subject to any charges or any tax whatsoever.

Art. 47. The Register *(Greffier)* shall state at the foot of the judgment whether the sentence has or not been executed. The Captain shall transcribe the judgment in the punishment-book, to be remitted to the Commissary of Maritime Inscription of the port of discharge. The entry thus made is to be certified by the Register.

Art. 48. The Captain, Master, or commanding officer who neglects to conform to the orders of Chapters 1 and 2 of Title II. shall be punished by a fine of 25 to 300 francs.

Chapter III.—Of the Form of Proceeding in Cases of Maritime Crimes.

Art. 49. When a crime has been committed on board of a ship, the Captain, Master, or commanding officer *conforms* for the statement of facts and for the mode of proceeding, according to the instructions by the Articles 24 and 25 cited above. He shall take also the proofs of conviction and arrest the offender.

Art. 50. Immediately after his arrival in a port of France or in a French colony, the Captain, Master, or commanding officer shall send the prisoner and the proofs, &c., to the Commissary of Maritime Inscription of the place.

This functionary shall complete the information, and transmit the documents within twenty-four hours to the Procureur of the Arrondissement, and shall provide transport for the prisoner to the judicial authority.

Art. 51. If the ship arrives in a foreign port, the Captain, Master, or commanding officer shall fulfil the regulations prescribed by the first paragraph of the preceding article in reference to the French Consul. Where there is no Consul, the Captain, Master, or commanding officer shall act in the same manner with regard to the commander of the ship of war present at such places; who will proceed with the same authority as the Consul.

Title III.—Of the Penalties.

Art. 52. The punishments applicable to breaches of discipline are

For the Ship's Company.—1. Confinement on board for eight days at most. 2. Stoppage of grog *(boisson fermentée)* for three days. 3. The look-out on the top-gallant yards, in the top, on a yard, or on the bow for half an hour at least or four hours at most. 4. The forfeiture of one to thirty days' pay if the ship's company is engaged by the month, or a fine of two to fifty francs if engaged by the trip. 5. The prison for eight days at most. 6. Lashing to a lower mast on deck, between decks, or in the hold for one day at least and three days at most, from one to four hours each day. 7. Both legs in irons not exceeding five days. 8. The black hole *(cachot)* not exceeding five days. The irons and black hole may be accompanied by stoppage of grog, or even an allowance only of bread and water. Where a dangerous man is to be dealt with, and in prevention of crime, the punishment of the irons or black hole may be continued as long as necessity requires it, but in that case it is only necessary to stop the allowance of grog.

For the Officers.—1. The forfeiture of ten to forty days' pay, if engaged by the month, or 20 to 150 francs if engaged by the trip. 2. Simple arrest, not exceeding fifteen days, with the continuance of duty. 3. Close arrest in the cabin not exceeding ten days. 4. Temporary suspension from duty, with exclusion from the Captain's table and stoppage of pay. 5. Disrating from the employ of an officer with the obligation of doing the duty of a seaman, with the pay of that grade to the termination of the voyage.

For Cabin Passengers.—1. Exclusion from the Captain's table. 2. Confinement to the cabin.

For the Passengers between decks (d'entre pont).—Exclusion from the upper deck beyond two hours each day: to be applied only for eight consecutive days.

Art. 53. The punishments which the Captain, Master, or commanding officer may inflict by the terms of Art. 7 of the present decree are as follow:—1. Confinement for eight days. 2. The stoppage of liquors for three meals. 3. The look-out for an hour, or the irons for one day.

Art. 54. Officers and passengers either of the cabin or between decks who, condemned to a punishment of discipline, shall refuse to submit to it, may be put under close arrest *(arrêts forcés)* not exceeding ten days.

These punishments may be extended as long as necessity requires in the case of a dangerous man, or in prevention of crime.

Art. 55. The correctional penalties applicable to offences are as follow:—1st. A fine of 16 to 300 francs. 2. The irons, not exceeding twenty days, with or without the forfeiture of part of the pay, which is not to exceed one half. 3. The shipment on board a vessel of war on the half pay of their rank for officers, or on two-thirds of their pay for quarter-masters or seamen.—The duration of service on board is not to count for advancement, nor for the examinations of the Captains of the merchant service. 4. The loss or suspension of the power of commanding. 5. Imprisonment for five days at least and five years at most.

(To be continued.)

Compass Deviation on board H.M.S. "Sanspareil,"—*By Captain A. Cooper Key, C.B.*

H.M.S. Sanspareil, at Singapore, 2nd July, 1857.

Extract of a Letter.—As you are aware, the deviation of the standard compass of this ship was found to be unusually great when she was swung at Plymouth in January, 1856; and as it has altered in a peculiar manner with a change of latitude, I think a few remarks concerning it may be of service, even if they but tend to confirm what was previously known. They will at all events add an additional fact, and be an additional reason for insisting that as yet no *law* can be deduced whereby the deviation of a ship's compass can be determined when her geographical position is changed, and that no plan for neutralizing or reducing it can be relied on; but that every officer must depend on *his own observations* for obtaining it, and that they should be repeated at every opportunity.

The funnel of this ship being but 19 feet 4 inches from the standard compass, there is a considerable difference in the deviation according as it is up or down, being greater in the latter case. In Captain Johnston's work on this subject, p. 55, second edition, he mentions that this difference is usually observed when the funnel is within thirty or thirty-five feet of the compass; but he does not, I imagine, point out its true cause. The chief attractive and repulsive power of a magnet lies in its poles, and as the top of the funnel may be considered (at all events in the northern hemisphere) as the South pole of the magnetized iron with which it is in connection,—by bringing it on a

level with the standard compass its attractive force on the North end of the needle is thus applied horizontally, and its effect is a maximum. I mention this as a *principle* which does not appear to be sufficiently considered in any work treating on the local attraction on board ship, viz., that the deviation of the needle is due only to the *induced magnetism* of the iron on board, and its direction is regulated by the position of the *poles* of that iron.

On approaching the magnetic equator, therefore, the deviation decreases from two causes—the iron in the ship losing its magnetic power, and the magnetic force of the earth acting horizontally on the needle.

The tables of deviation which I enclose, taken with the funnel down at Plymouth and at the Cape of Good Hope, show that in this ship the deviation has not altered its direction, as is usually the case on a change of hemisphere, but its amount only. This naturally would seem to be due to the malleable iron, such as the funnel, &c., retaining its polarity, while the cast iron had, from change of geographical position, changed its poles. And such I found to be the case,—first, near the Cape, and again when in the vicinity of the Island of Amsterdam, in lat. 38° S., long. 78° E.; the ship having been in the southern hemisphere forty days in the first instance and fifty-six in the second. On approaching the binnacle compass to the top of the funnel the North point of the needle was immediately attracted. The same occurred with a wrought iron stanchion on the main deck. Whereas the upper surface of the guns attracted the South point, and the lower the North point. The ship, in both cases, was rolling considerably, so that we could not depend on the observation as to the *amount* of deviation caused by the funnel at the distance of three feet in each case, which I endeavoured to ascertain. I would merely say that it appeared to be less in the second instance than in the first, which would tend to prove that the funnel was losing its magnetic power. This has been in some measure confirmed by the few amplitudes we have had the opportunity of observing while in lat. 36° and 38° S. They show that (supposing the variation given is correct) the deviation is becoming westerly with the ship's head to the eastward. But it might be readily determined by the Commander of the *Hermes* (which vessel has been in the southern hemisphere for a considerable time) ascertaining by experiment which end of the compass needle the *top* of the funnel attracts, and which it repels.

The deviations recorded in table iii. were obtained by observing the bearing of a peak at twenty miles distance, by Mr. Thos. J. Whillier, the Master of this ship, in whose accuracy I have great confidence.

If you think the above information concerning the polarity of the funnel worth communicating to the *Nautical Magazine*, pray do so.

I remain, &c.,

A. Cooper Key, *Captain*.

H.M.S. *Sanspareil*, 70 guns, Captain W. J. Williams, Master T. J. Whillier, Plymouth Sound, 5th January, 1856. Distant object, Brent Tor, bearing N. 49° 0′ E., seventeen miles distant.—*Funnel up.* Length of ship, 212ft.; armament, 70 guns; tonnage, 2,334; h.p., 350.

Direction of Ship's Head by Standard Compass.	Time.		Simultaneous Bearings			
			From Standard Compass on board.	From the Shore Compass.	Deviation of Standard Compass.	Direction of Deviation.
North	Between 9h. a.m and 3h. p.m.	Simultaneous.	S. 60° 20′ W.	N. 62° 10′ E.	1° 50′	East
N.b.E.			55 30	60 20	4 50	,,
N.N.E.			50 0	57 55	7 55	,,
N.E.b.N.			43 40	56 0	12 20	,,
N.E.			39 0	54 50	15 50	,,
N.E.b.E.			35 10	52 50	17 40	,,
E.N.E.			34 40	52 0	17 20	,,
E.b.N.			32 20	51 10	18 50	,,
East			32 20	49 55	17 35	,,
E.b.S.			32 40	49 25	16 45	,,
E.S.E.			35 0	49 50	14 50	,,
S.E.b.E.			S. 36 0 W.	N. 49 55 E.	13 55	,,
S.E.		Bearing of distance object.	N. 37 0 E.	S. 49 0 W.	12 0	,,
S.E.b.S.			40 0	49 0	9 0	,,
S.S.E.			43 0	49 0	6 0	,,
S.b.E.			46 0	49 0	3 0	,,
South			50 0	49 0	1 0	West
S.b.W.			53 20	49 0	4 20	,,
S.S.W.			56 0	49 0	7 0	,,
S.W.b.S.			50 0	49 0	11 0	,,
S.W.			63 0	49 0	14 0	,,
S.W.b.W.			67 0	49 0	18 0	,,
W.S,W.			66 0	49 0	17 0	,,
W.b.S.			66 30	49 0	17 30	,,
West			66 0	49 0	17 0	,,
W.b.N.			65 0	49 0	16 0	,,
W.N.W.			64 30	49 0	15 30	,,
N.W.b.W.			62 0	49 0	13 0	,,
N.W.			60 30	49 0	11 30	,,
N.W.b.N.			58 0	49 0	9 0	,,
N.N.W.			55 30	49 0	6 30	,,
N.b.W.			N. 51 30 E.	S. 49 0 W.	2 30	,,

Height of card above the deck, 4ft. 4½in. Distance of standard compass from nearest iron, 14ft.; from nearest gun, 14ft.; tafrail, 53ft.; great funnel (iron), 19ft. 4in.; binnacle compasses, 10ft. 6in.

H.M.S. *Sanspareil*, 70 guns, Captain W. J. Williams, Master T. J. Whillier, Plymouth Sound, 7th January, 1856. Distant object, Brent Tor, bearing N. 49° 0′ E., seventeen miles distant.—*Funnel down.*

Direction of Ship's Head by Standard Compass.	Time.	Simultaneous Bearings		Deviation of Standard Compass.	Direction of Deviation.
		From Standard Compass on board.	From the Shore Compass.		
		° ′	° ′	° ′	
North	Between 8h. 15m. a.m. and 3h. 30m. p.m.	N. 48 0 E.	S. 49 0 W.	1 0	East
N.b.E.		42 30	49 0	6 10	,,
N.N.E.		37 30	49 0	11 30	,,
N.E.b.N. ...		33 20	49 0	16 0	,,
N.E.		30 0	49 0	19 0	,,
N.E.b.E.		27 0	49 0	22 0	,,
E.N.E.		25 20	49 0	23 40	,,
E.b.N.		25 30	49 0	23 30	,,
East		25 0	49 0	24 0	,,
E.b.S.		26 20	49 0	22 40	,,
E.S.E.		28 20	49 0	20 40	,,
S.E.b.E.		32 0	49 0	17 0	,,
S.E.		34 20	49 0	14 40	,,
S.E.b.S.		38 30	49 0	10 30	,,
S.S.E.		42 40	49 0	6 20	,,
S.b.E.		45 50	49 0	3 10	,,
South		50 30	49 0	1 30	West
S.b.W.		54 0	49 0	5 0	,,
S.S.W.		59 20	49 0	10 20	,,
S.W.b.S.		64 0	49 0	15 0	,,
S.W.		65 40	49 0	16 40	,,
S.W.b.W.		69 20	49 0	20 20	,,
W.S.W.		71 30	49 0	22 30	,,
W.b.S.		72 30	49 0	23 30	,,
West		72 30	49 0	23 0	,,
W.b.N.		72 20	49 0	23 20	,,
W.N.W.		71 0	49 0	22 0	,,
N.W.b.W. ..		69 0	49 0	20 0	,,
N.W.		N. 65 0 E.	S. 49 0 W.	16 0	,,
N.W.b.N. ...	Simultaneous.	S. 77 40 W.	N. 64 55 E.	12 45	,,
N.N.W.		75 0	64 55	8 5	,,
N.b.W.		S. 70 20 W.	N. 66 10 E.	4 10	,,

Height of card above the deck, 4ft. 4½in. Distance of standard compass from nearest iron, 14ft.; from nearest gun, 14ft.; taffrail, 53ft.; great funnel (iron), 19ft. 4in.; binnacle compasses, 10ft. 6in.

The cause of this great deviation I attribute to the funnel having been changed from copper to iron. See last swinging, 9th November, 1852, E. 91, with copper funnel.

H.M.S. *Sanspareil*, 70 guns, Captain A. Cooper Key, Master T. J. Whillier, Simons Bay, 22nd May, 1857. Distant object, a sharp peak (no name given) bearing S. 40° 30′ E., twenty-two miles distant. —*Funnel down.*

Direction of Ship's Head by Standard Compass.	Bearing of distant object by Standard Compass	Deviation of Standard Compass.	Direction of Deviation.
	° ′	° ′	
North	N. 41 50 E.	1 20	East
N.b.E.	43 20	2 50	,,
N.N.E.	44 30	4 0	,,
N.E.b.N.	45 0	4 30	,,
N.E.	46 20	5 50	,,
N.E.b.E.	45 20	4 50	,,
E.N.E.	43 40	3 10	,,
E.b.N.	43 0	2 30	,,
East	43 0	2 30	,,
E.b.S.	41 40	1 10	,,
E.S.E.	41 0	0 30	,,
S.E.b.E.	40 0	0 30	West
S.E.	39 40	0 50	,,
S.E.b.S.	39 30	1 0	,,
S.S.E.	39 0	1 30	,,
S.b.E.	38 20	2 10	,,
South	38 20	2 10	,,
S.b.W.	38 0	2 30	,,
S.S.W.	37 40	2 50	,,
S.W.b.S.	37 20	3 10	,,
S.W.	37 10	3 20	,,
S.W.b.W.	36 30	4 0	,,
W.S.W.	36 10	4 20	,,
W.b.S.	35 40	4 50	,,
West	35 40	4 50	,,
W.b.N.	36 0	4 30	,,
W.N.W.	36 0	4 30	,,
N.W.b.W.	36 20	4 10	,,
N.W.	37 40	2 50	,,
N.W.b.N.	38 40	1 50	,,
N.N.W.	40 20	0 10	,,
N.b.W.	N. 41 0 E.	0 30	East

Height of card above the deck, 4ft. 4½in. Distance of standard compass from nearest gun, 14ft.; tafrail, 53ft.; great funnel, 19ft. 4in.; binnacle compasses, 10ft. 6in.

THE INDIAN OCEAN CONSIDERED WITH REFERENCE TO THE WANTS OF SEAMEN.

(Continued from page 489.)

THE STRAITS OF THE RED SEA.

The Little Strait.—The Red Sea is entered by one of two channels, called the Great and Little Straits: the former is comprised between the Cape of Babel-Mandeb and the island of Perim: the second between this island and the Abyssinian coast. The Little Strait is much frequented, on account of its depth of water admitting of anchorage when required. In approaching this strait the soundings suddenly decrease from 18 to 8 fathoms. A vessel entering with a fair wind, should keep mid-channel in the Little Strait, or rather nearer to Perim Island than the Arabian shore. There is no danger in this channel, although the soundings are by no means regular, varying from 13 to 7 fathoms.

A vessel leaving the Little Strait and doubtful of reaching Mocha before night, with the promise of bad weather from S.W., should anchor under shelter to the Northward of Cape Babel-Mandeb, in the entrance of the strait. There the sea is smooth, whereas outside the sea will be found rough, and she will have greater difficulty from thence in reaching Mocha.

The Great Strait.—The Great Strait, which is about nine or ten miles broad, is bounded on the West by the coast of Abyssinia; on the South by the little islands called the Brothers; and on the East by Perim Island. It is bordered by a narrow ridge of soundings; but in the middle of it no bottom is found at 90 fathoms. At a short distance from the Brothers, and near the coast of Abyssinia, there is uneven ground, the soundings varying from 25 to 13 fathoms.

As no anchorage is to be had in the Great Strait, excepting off Perim Island, off the N.W. island of the Brothers, and near the Abyssinian coast, the Little Strait is generally preferred both on entering and leaving the Red Sea. With a good breeze however, and during the night, the Great Strait is preferable, and it would not be prudent then to take the Little Strait.

A vessel entering the Great Strait should keep near Perim Island, where, in case of the wind falling and she is set towards the Brothers, she may find good anchorage. On entering the Great Strait during the night, short boards should be made to the West of Mocha until daylight. She may then keep near the coast of Abyssinia, in soundings varying from 15 to 19 fathoms. It is better to make short tacks thus than to anchor with a fresh wind, which might occasion the loss of an anchor. And this being decided on, during the night a vessel should take care not to pass Mocha; for in the season of Southerly winds, the current sets strongly to the Northward along the coast of

Abyssinia. On this subject, however, we need say no more, as it belongs to the navigation of the Red Sea. Hereafter we may refer to the excellent directions of Horsburgh and Capt. Moresby, who have much frequented it.

Leaving the Red Sea.—It is often a difficult task to clear the Red Sea, and vessels seldom attempt to do so from September to April, when Easterly winds prevail in the gulf beyond the Strait of Babel-Mandeb. In fact, a vessel then leaving this sea meets the N.E. monsoon, which is against her, either for India or the Persian Gulf.

In April, when Westerly and S.W. winds are set in on the South coast of Arabia, a vessel may safely leave the Red Sea, and proceed towards the Persian Gulf or the coasts of India. The favourable season for leaving it is from April to September, and a vessel then bound to Surat should not leave Mocha before the beginning of September, so that she may reach that place towards the 20th of the month, or at the end of the S.W. monsoon, before which it would be imprudent to anchor in that harbour.

On leaving the Straits of Babel-Mandeb a vessel should shape her course East in the middle of the Gulf of Aden, where the breeze is more constant than near the shore; and should the wind be light and variable, she should not approach the African coast, by which she will avoid calms and strong Westerly currents.

Bound to Ceylon or further Eastward, she should shape her course for either the Eight or Nine Degree Channel between the Laccadives and Maldives, a route which should be adopted from March to November, when it is preferable to any other. It may even be taken during the height of the N.E. monsoon, provided Seuhelipar be passed close, if taking the Nine Degree Channel. From October to March it is better to pass North of the Laccadives, and make Southerly along the Malabar coast as far as Cape Comorin, and then run for Point de Galle.

For Muscat.—The most favourable season for the passage from the coast of Malabar to Muscat, or the entrance of the Persian Gulf, is from November to February. During these four months inclusive, a vessel leaving the Gulf of Bengal, Ceylon, or the Southern ports of the Malabar coast, should follow the coast, taking advantage of the land and sea breezes, which will be found as far as the high land of St. John, in lat. 20° N. She should then stand off the coast N.W., when the wind will permit passing near the coasts of Guzerat, Cutch, Scindy, and Beloochistan. Having doubled Cape Diu, it will then be advisable to keep well to the Northward, and if the wind admits, to reach the latitude of 23° 50′ or 24° N., before gaining the meridian of 60° E. Indeed, even in this season, the winds frequently come from the Northward. In crossing the Gulf of Cutch, heavy squalls from East or E.S.E. are often experienced, with a dull cloudy sky, and, on the contrary, when the wind gets to the Northward, the weather is fine, and the sky very clear; with N.E. winds white squalls are met, which are only indicated by a

small cloud, and which would pass unnoticed but for the wind they bring.

When running West on the parallel of 24° N., a fresh breeze will most probably be found, until nearly half the Persian Gulf is opened, from the entrance of which violent squalls from N.W. must be expected. A vessel then proceeding up the gulf should keep the Persian shore: and if going to Muscat that port may be steered for, keeping a little to windward of it. At this season the passage is generally not more than ten or twelve days from Bombay to Muscat.

During this season a vessel making direct for the Persian Gulf from Bombay sometimes meets with Northerly winds, which prevent her reaching the coast to windward of Ras-el-Gat, and if she nears the coast meets with calms. These can only be avoided by keeping five or six leagues from it.

In March, April, and May, the direct course for Muscat may be steered from any port on the Malabar coast, and as at this season the land breeze is not to be depended on, rendering it difficult to make Northing, a vessel should stand out to sea, if she be to the Northward of the Laccadives, taking the most suitable channel, if from any port on the Southern coast of Malabar.

When well off the coast, the sea will be found smoother than near it, and the wind will be found varying from North to W.N.W., but most frequently to N.N.W. and N.W. With the wind from North, a ship would make her Westing, and when from West, she would stand to the Northward to reach Ras-el-Gat, if in the month of March or beginning of April, as speedily as possible. In the latter part of April and in May a vessel should stand to the Westward all she can, in order to profit by Westerly and S.W. winds, which, as soon as the Gulf of Aden is opened, will surely be met as the coast of Arabia is approached. She should then make for the coast to the South of Ras-el-Gat, off which Southerly and S.W. winds are found during March and the beginning of April, blowing strongly also in May.

Within Ras-el-Gat, during this season, land and sea breezes are met, unless heavy squalls from N.W. come down from the Persian Gulf, which they do once or twice a month. During these months a vessel may keep at a distance of five or six miles from the coast, and the best passages from Bombay to Muscat are made in twenty days.

In September and October, at the change of monsoons, the passage is longer; the wind is then variable between the coasts of Arabia and Malabar. However, it is generally N.W. about Bombay and to forty or sixty leagues from the coast, off which a heavy sea is often found. At the end of September and during October a vessel should keep along the coast as far as the latitude 19° or 20°, and then stand out to sea, and take advantage of the changes in the wind, keeping to the Northward of 19° N. in crossing for the Persian Gulf.

If bound to Muscat, she should endeavour to sight the land about Ras-el-Gat, whence she may have variable winds along the Arabian

coast. If she is for the Persian Gulf, she should keep as far North as she can near the coast of Beloochistan, as far as Cape Jask, and avoid the Arabian coast.

Southern Routes from Bombay to Muscat.—The Southern route for Muscat and the Persian Gulf from Bombay, is a distance of 1,500 leagues, although the actual distance from Bombay to Ras-el-Gat is not more than 260 leagues. In June, July, and August, this Southern route is generally followed by vessels to the Persian Gulf or the Red Sea.

On leaving Bombay they keep in soundings from 18 to 23 fathoms, and then work to the Southward along the coast between the depths of 32 and 54 fathoms, not approaching the shore into less than 18 fathoms, and not standing out to seaward so as to lose soundings, especially in passing the Laccadives. Along the coast at this season strong winds from S.W. and W.S.W. prevail, sometimes accompanied by heavy squalls from West and W.N.W., with rain.

Having reached the parallel of 4° S. lat, and nearly on the meridian of the South point of Ceylon, in June and July, they fall in with the S.E. trades; but in August these winds must be expected further South.

In the first two of these months, with the S.E. wind vessels may run West between the parallels of 4° and 4° 30′ S., in order to pass between the southern extremity of the Maldives and the Speaker Bank. This is the first of the southern routes. In the last month above mentioned it is better to pass South of Diego Garcia, and to keep in 9° or 10° S. lat. This latter route—the second of the southern routes—is generally safer than the former, because the wind is stronger and steadier than near the equator. However, vessels which have run West on the parallel of 4° S. in June, July, and the beginning of August, have found the sea smooth and the wind steady E.S.E. to S.E. But from March to the end of August, on the contrary, the first route is not followed because the wind frequently varies to West and occasions an easterly current. When the Trade wind prevails, a westerly current is generally found nearly all the year in the second southern route, and this should be preferred to that made on the parallel of 4° S., by vessels leaving the East coast of India for Bombay, the Persian Gulf, or Red Sea, as well as by those leaving Bombay for these seas.

Before leaving the southern latitude a vessel should be careful to make her westing, and therefore, if bound to the Red Sea, it will be best to pass near the Seychelles. When bound to Muscat or the Persian Gulf, she should reach to a degree or two West of Ras el Gat before leaving the Trades; for, during the S.W. monsoon, between the equator and the coast of Arabia W.S.W. or W.N.W. winds are generally found, which are always accompanied by an easterly current. Consequently, it then becomes impossible to make westing when once a vessel is North of the equator, so all she can do then is to endeavour not to fall off to leeward of North, for the cross sea met there often makes her do so. It is necessary then at least to gain the meridian of

Ras el Gat, so as to reach it with a westerly wind. She would then sight this cape or the land South of it, but should not approach the dangerous Gulf of Massera; but, having passed the island of this name, she would keep to windward as much as possible, in order to make the land.

In approaching Ras el Gat the S.W. winds, which blow strongly to the southward of the cape during this monsoon, gradually become S.E. as the cape is passed. When it remains at South the S.W. monsoon ceases and the wind is variable as far as Muscat. Once or twice a month strong S.E. winds are found near the cape, lasting two or three days and reaching to the middle of the gulf; nevertheless, N.W. winds prevail in these parts.

Direct Route from Bombay to Muscat.—The direct route from Bombay to Muscat is rarely taken by merchant vessels during the height of the S.W. monsoon. It has been adopted by ships of war in preference to the long circuit made in taking the southern route. In this route a vessel may work between the parallels of 15° and 19° N. lat. in order to make her westing. Some vessels have made this passage without going further South than 13° N. lat.

Routes from the Persian Gulf to the Indian Ocean.—Vessels leaving the Persian Gulf from September to April, during the season of the northerly winds, for any port on the western coast of India, having doubled Cape Jask, should follow the coast of Beloochistan, keeping, however, at such a distance as not to have to encounter the variable winds and alternate calms and breezes found near the coast.

In approaching the meridian of Cape Mouarree it will be found advisable to stand to the S.E., to cross the entrance of the Gulf of Cutch, and then to pass at a good distance from the coast of Guzerat. When Cape Diu is doubled, at the distance of twelve or fourteen leagues, a direct course for Bombay may be shaped, if bound to that port, or for the high land of St. John, if bound to Surat.

A vessel bound to any port on the South coast of Malabar, or in the Gulf of Bengal, should proceed as already stated, passing at the same distance from the coast of Beloochistan and that of Guzerat; but with N.E. and. N.N.E. winds a vessel should keep far enough North to sight the peak of Barcelore, and then pass between the Laccadives and the coast.

In the S.W. monsoon, from March to September, a vessel leaving the Persian Gulf for ports on the western coasts of India should keep in the latitude of Kundary, at thirty or forty leagues from the land, and then steer East for her destination.

Bombay is the only port on this coast that can be frequented during this season. The harbour of Surat is very bad, and vessels bound there will do well not to leave the Persian Gulf before the beginning of September. Then, preserving a good distance from the coast of Beloochistan, they should navigate so as to pass twelve or thirteen leagues from Cape Diu. When off this cape they will have attained the parallel of 20° N. lat., and may then steer eastward for the high land of St. John; they should look well out for the anchorage, and

not get hold of the land too far North. By night, they should not approach it in soundings less than 13 fathoms, and when the land is sighted they should keep along the coast as far as Surat, in 9 or 10 fathoms water, until abreast of Damaon; they may then continue along the coast, in 6 fathoms at high water and 5 if low water, when going into Surat River.

In this season, if bound to the Gulf of Bengal, a course should be steered so as to pass West of the Laccadives, and then between these islands and the Maldives, or through the channels among the islands, and then shape a course for Cape Comorin. At this season it is better to pass West than East of the Laccadives, as fresh winds and clear weather are found there while to the East of them a vessel is exposed to squalls and rain in the whole of the S.W. monsoon.

(To be continued.)

TELEGRAPHIC COMMUNICATION WITH INDIA.

Chance has thrown in our way a pamphlet bearing the above title, that would altogether have escaped our attention but for the great importance, at the present moment, of the subject on which it treats. There never was a period, perhaps, when, in reference to the sad condition of our Indian possessions, the powers of the electric telegraph were more desired than they are now,—to let us have facts fresh as they occur, a statement of events of a nature that come home to many an anxious heart,—to bring them from day to day with the rapidity of lightning to our homes, instead of on the too tardy wings of steam.

It is to be regretted that if in this country a great object is to be effected in two ways, and a company is formed for each, that each magnifies the difficulties of the other, in order to obtain proselytes to itself. And if there are really no actual difficulties, they are too considerately provided by each party against the other. But there are always some weak points from which these are readily made.

The project of telegraphic communication with India is in this condition. The two modes of effecting it are by the Euphrates valley and by the Red Sea. They both have difficulties common to each other inherent in the means of communication by the electric telegraph. But the difficulties of the one amount to obstacles not to be overcome without an outlay estimated at some six millions sterling (and estimated only be it remembered), while the other has the mere difficulties (which also belong to both) attending the laying and preserving in working order the electric cable in the sea. But this is comparatively safe when once effected, a condition, as will be observed to which the other being by land, cannot pretend.

The pamphlet to which we have alluded advocates the hopeless

Euphrates line and mischievously exaggerates the difficultics of that by the Red Sea. If we endeavour to divest both of these projects of their colouring, and show which is the most practicable, we shall be set down as partisans. But as we do not enjoy that condition with either and are unknown to both, a desire of seeing right prevail over wrong, and the great object of electrical communication with India advanced, induces us to undertake the task.

And first, then, of the Euphrates line. The valley of the Euphrates is said, perhaps with much truth, to be the key which would open to Europe the treasures of the East. It is besides celebrated in history, and moreover the river is in direct line from London to Kurrachee, the future Bombay of India. It seems hitherto to have been the favourite line, for the pamphlet states that the Government selected and encouraged it with a subsidy, and all that was required was a firman for its execution—excepting, perhaps, a little sum to be mentioned. Colonel Chesney the well known friend and staunch advocate of the Euphrates line, presented a highly interesting account, both historical and geographical, of this whole route, to the British Association at their late meeting, when he read a little history of his proceeding there with Sir John McNeil last year, on a truly engineering mission, to see how his favourite scheme would be received by the Turkish Government. The Turks, he said, were quite alive to the advantages of it and would give the necessary firman, but they first required a deposit of £28,000, along with an understanding that the works must be commenced within one year. This upon the first section of the line, that which was estimated at £8,858 *per mile*, was coming to the business part of the question, and yet this simple statement is not to be found in the pamphlet before us, although it *is* acknowledged there that the disparagement of the scheme is the wanton damage it might undergo by the Arabs: in other words, that the line of telegraph would not be safe—it would not be secure, a conclusion at which the Colonel reluctantly arrives when he tells the Association that, "Looking to the gradual operation of time to establish our influences among this people, you will readily understand that I have not thought the time arrived for laying down isolated electric wires through their country with any prospect of security."

Now, why was not this honestly stated in the pamphlet?—most likely because this did not suit its purpose! Of what use are figures after this admission? Of what use to talk of the Euphrates line after this? All its attractions of historical associations, those of being in the line of the shortest route, in fact its practicability, vanish after these words, pronounced publicly by its warmest friend, accompanied by one of our first engineers. And yet we find nothing of this in the pamphlet by us, but, instead of it, abundance of exaggeration of the difficulties of the Red Sea route (which we have yet to look into) and a tenacious advocacy to the very last of this premature scheme. Its time has not arrived! and that they should both sink together it is wickedly (we had almost said) but mischievously hinted that both lines should be made,—so that in the event of one failing, the other

might be available, as if such a thing were probable, not to say practicable; and, knowing that both will never be had at once, the writer thus insists that we shall not have one.

Such is the effect of party in this country, and he is a good advocate who advances his own cause by damaging his opponent's, and still to do the latter if he cannot effect the former. And yet, at the present moment, what is this but deliberate cruelty to those whose whole existence now is bound up with the earliest possible news from India—that only which is to be obtained by the establishment of the electric telegraph?

Shall we follow this advocate of the Euphrates line in his depreciating remarks on that by the Red Sea. It is but fair to rectify some of his statements. As for those about *insulation* on shore (twice stated), they may be left to the Atlantic Telegraph Company to profit by. The perils of the Red Sea are the principal burthen of his observations, and to them we will now refer,—and first to the principal objection urged, that "owing to the tremendous and uncertain depths of the Red Sea and the character of its coral reefs, the cable would be lost or almost instantly destroyed." Again, it may be *friendly* to leave the "tremendous depths" to the mature consideration of the Atlantic cable company. What they are we don't know, 400 fathoms without bottom being all that the chart tells us. But considering that about 1,500 is the deepest in the part of the Mediterranean near it, which is about 250 miles wide, and the Red Sea has a mean breadth of 130 miles, the deepest part of this long submarine valley may be about 700 or 800 fathoms.

But the coral reefs, we are told, "are represented by nautical men as being as sharp as the back of an ordinary knife." This nautical expression has evidently not been without its effect on landsmen to be quoted thus. But what is it more than a mere *façon de parler* among them to convey an idea of the effect of these hard coral rocks on ship's bottoms. But does this advocate of the Euphrates line imagine that there is no mud and sand in the Red Sea on which the cable may lie as quietly as in any other sea, and much more so than in the German Ocean? Let him consult the chart.

How can the light cables between Orfordness and Holland serve to form any comparison with that to be laid in the Red Sea? Thus we meet with the following argument in the pamphlet before us:—"If the old Electric Telegraph Company require a special steamer, the *Monarch*, with a large staff, at a heavy expense, to watch and pick up and repair the line in question—about 100 miles long—what would be the strength of the squadron required in the Red Sea?" Now, to landsmen of the writer's stamp, here is a triumphant argument against the Red Sea cable. With them it would be doomed, and, as he says, "it could not be depended on for a week." But no two seas are more widely different than the German Ocean and the Red Sea. The former, remarkable for its ever restless tidal stream, its shallow nature rendering it peculiarly liable to the disturbing effects of gales, the southern part of it especially being full of long snaky ridges of shoals

with deep water between them, but the summits of many dry at low water; and where the cable lies on these, when covered it has to withstand the sweeping effect of the current, and when uncovered the heavy blows of the surf dashing the shingle about it. All this no doubt keeps the *Monarch* at work to repair its damages. Why, even if this did not provide sufficient work for the *Monarch*, there is a collier or some other vessel now and then surging over these ridges, too frequently leaving her bones on them (as seamen express the calamity of wreck), and these bones (literally her timbers) may do their work on the cable. Now where is all this in the latter? Where is all this continual strife of waters in the Red Sea? Where is the current, the rise and fall of the tide to lay bare the cable,—the abrading shingle, with the violent surf and the abandoned wreck to molest the cable. Any nautical man would say, "It is no where but in the imagination of their author." Why may not the cable sleep as quietly in the oozy and sandy bottom of the Red Sea as in the Mediterranean or the Gulf of St. Lawrence, or even in the Atlantic? It will be less molested there than in the turbulent waters of the German Ocean!

And again, as if the disparagement of the Red Sea cable in the pamphlet before us were not enough to render its doom final, the *Friend of India*, which is stated by it to be "a journal remarkable for the accuracy of its information, and whose authority will scarcely be impugned by the Chairman of the Red Sea Company," is quoted for the necessity of laying the cable over "shoals scarcely covered by the water and places where for miles the charts are marked no bottom. The operation of laying the wires, always difficult and often dangerous, would be still further impeded by the furious gusts which at certain seasons sweep over the Red Sea." It was no "friend of India," that could print such cant as this! A real friend of India would point out how the "shoals scarcely covered" might be avoided, and where the desirable bottom of sand or mud, and a proper depth, might be found, as far as the chart gives it. As for the furious gusts of wind, did they ever prevent British seamen from doing their work when it lay in that direction. We leave the *Friend of India* to enlighten the friend of the Euphrates line on this point, which can scarcely trouble the mind of the Chairman to whom it is addressed.

There is still another assertion in the pamphlet before us that must not pass unnoticed. The foregoing conditions of the two lines may be matter of opinion, affording abundant ground for argument and difference of views of a practical, commercial, and nautical character, according to the knowledge of their advocates on these several points. But among the disparaging statements in which the pamphlet before us abounds, stands this at page 4:—"The Red Sea Company contemplate a land line of 240 miles from Alexandria to Suez [and a much safer one, too, than ours might have been added] and 4,163 miles of cable from Suez and Aden to Kurrachee." Now there is no mistaking figures, for there they stand as specifying the length of cable required. But the P. & O. Company, whose vessels have long been running this distance, make it from Suez to Aden 1,308 miles—and

even to avoid shoals we could not make it more than 1,375,—and that from Aden to Kurrachee 1,550, making a total of 2,925 nautical miles, as distances by sea are always reckoned. So that, not content with disparaging every favourable condition of the Red Sea line, and urging a comparison with the effects of another sea that do not apply, having a totally different character, here it is made to appear that the Red Sea line requires nearly half as much more cable than it really does! This may be a friendly advocacy, indeed, but such statements can have little weight with men of sense, although, unfortunately, the bulk of society will not look beneath the surface and judge for themselves, and too often allow misrepresentation to succeed and thus the fairest projects are marred.

In taking a general comparative view between the two lines—the Euphrates valley and the Red Sea,—the main feature of difference lies in this, that the Euphrates line consists of about as much distance by land, as far as the entrance of the Persian Gulf, as the other does by sea. Now, for the mere facility of laying the wires, the advantage would undoubtedly be in favour of the land. But then, where is their security?—how can their safety be guaranteed? The best authority, Colonel Chesney, admits it as unadvisable. "The time," he says, "is not arrived for laying down isolated electric wires * * with any prospect of security." And as this is an essential condition to either line, that which has the fewest chances of being cut off, or, in other words, that which has most pretensions to security has most pretensions, in a commercial point of view, to public patronage, and that is undoubtedly the Red Sea line.

Happily for ourselves we are unconcerned spectators of this strife of interests. But, as firm friends of India, we cordially desire the success of the Red Sea cable, as we did (with many others) that of the Atlantic,—indeed, who did not? And we have little doubt that even those who vainly looked for that of the Euphrates line, and among them, perhaps, the author of the pamphlet before us, will eventually be found among the supporters of that by the Red Sea, the mysterious depths of which we trust will soon be explored by the sounding apparatus of one of Her Majesty's ships.

LIGHTS FOR STEAM AND SAILING VESSELS.—*Report of the Committee.*

[The pressure of other papers prevented the appearance of the following before.]

Committee Room, Admiralty, March 29th, 1857.

Sir,—The Committee appointed by the Lords Commissioners of the Admiralty, to inquire into the expediency of altering the present sys-

tem of Lights, established for steamers and sailing vessels, assembled on the 7th of March, and have continued their meetings until the 29th inst.; and having fully considered the subject on which their opinions have been required, have unanimously agreed to the following report:—

The committee having considered the instructions of the Lords Commissioners of the Admiralty, together with the memorial of 435 Masters of colliers from Shields, praying that coloured lights, red and green, may be established in all sailing vessels, to point out their respective tacks, and a bright light when going free; and the committee having also made themselves conversant with the evidence given before the committe in 1852, judged it necessary to call for such further evidence as might enable them to come to a satisfactory conclusion. For which purpose, the committee requested that members of Shipowners' Associations, the most intelligent Masters, Pilots, and other persons, might be selected from the ports of London, Glasgow, Liverpool, Shields, and Hull, and also Naval Officers, who had had experience of the working of the present system, since its adoption in 1852.

From the information obtained from these persons, it appeared to the committee that there was an uniform opinion that the system now in use in steamers is perfectly satisfactory; but with respect to sailing vessels, directly the reverse; and all agreed that coloured side-lights, similar to those carried in steamers, should be adopted in sailing vessels, in order that vessels approaching each other might know which way each is standing. The general opinion also was, that the sailing vessel should not carry the Bright White Light at the mast-head, the same as in steamers, so that this would become a distinguishing mark between the two classes.

The next consideration was, as to whether the coloured lights, Red and Green, should designate the port and starboard *tacks*, or the port and starboard *sides*, when shown in sailing vessels. The first impression, in most instances, with the persons examined was, that the *tack* should be designated; but when it was explained to them that either coloured light might, according to the direction of the wind, denote a sailing vessel going in the opposite direction to that which would be indicated by the exhibition of the same coloured light, in a steamer; and if the White light of this latter vessel were not visible, it might lead to collision; they readily admitted the propriety of the colour of the light designating the *side*, without any reference to the *tack* or the wind, and that they would then instantly know which way the vessel showing the light was standing, the same as now in steamers, and that the same rules would apply to all vessels.

It then became a serious question, whether these coloured lights should be shown only occasionally, when a vessel was seen, or be kept fixed. If the former, (occasionally,) it was feared the present great evil of indifference and want of a "good look-out," from which so large a portion of all the collisions arise, would still exist. On the other hand, it is certain that the smaller vessels and coasters could

not carry fixed lights in bad weather. After weighing all the opinions and objections on this subject, the committee consider that the best mode would be, to recommend strongly that the coloured lights should be carried *fixed*, when practicable, leaving with those who cannot do so the responsibility of neglecting to show such lights by hand, when approaching other vessels. If the foregoing suggestion be adopted, it should be made imperative that when the vessels are under way, those lights should be on deck "from sunset to sunrise," ready for use, and kept on their distinctive sides of the vessel, so as to prevent the possibility of showing the wrong light.

In all vessels that carry their lights fixed, it will be necessary to adopt screens, as in steamers, that the light may not be seen on the opposite bow or side to that intended. In the smaller classes of vessels, the committee are of opinion that the weather board in moderate weather may be made to answer that purpose; and at other times the lanterns, when used by hand, may be so screened as to show a light only in the proper direction.

With respect to vessels at anchor, the opinions have been very conflicting, varying between carrying a White light, as at present, or a Red light; and again, whether the lights should be fixed, or only shown occasionally on vessels approaching. These points having been duly considered, the committee came to the conclusion, that it would be desirable that an uniform single White light in a globular lantern, so as to show all round the horizon, should be continuously exhibited at anchor, "where best seen," at a height not exceeding 20 feet above the hull.

In recommending this system of lights to your lordships, the committee are aware that some additional expense will be incurred; but they do not anticipate any objection. The Owners and Masters of vessels who have been examined by the committee, have themselves proposed the adoption of two Coloured lights and a White light; it may, therefore, be presumed that the cost of one more light in addition to that now in use would not be objected to as a means of obtaining a greater security for life and property.

The subject of lights to distinguish pilot-vessels having been brought before the committee, it was found that lights for this purpose were in general use, but subject to no particular regulation, each port having its own signal. With a view to establish one uniform system for all pilot-vessels, it is suggested that, in addition to the lights proposed for sailing vessels, they should show a White light on the same level with the Coloured light.

A memorial from the Pilots' Committee of Liverpool, praying that they may be permitted to have two lights exhibited by vessels at anchor within that port, having been laid before the committee by their lordships, the committee consider that such circumstances have been stated respecting the numerous ferries, by the persons from Liverpool who have been examined, so as to justify their suggesting that this should be made a special case, and the prayer granted. And as it appears to this committee that cases may arise at other ports, from

the crowded state of the anchorage, and the great length of the vessels, in which it may be necessary to define both extremities, the committee recommend that, on the application of the local authorities to the Admiralty, their lordships should authorise a White light to be exhibited within the limits of their port by vessels at anchor, in addition to that now proposed.

Although not coming immediately under the subject of lights, the propriety of establishing signals for avoiding collisions during fogs, has been so strongly impressed upon the committee, that they have given it their consideration, and submit that their lordships should recommend an uniform practice in that respect. The most common instruments for this purpose in use at present are the steam-whistle or bell, and the horn, and the committee think that the use of these might be advantageously limited as follows, viz., that as the coasting and other smaller vessels do not all carry bells, it is desirable that their lordships should recommend as a general rule that all steamers should in a fog use the *steam-whistle* or *bell*, and all sailing-vessels a *fog-horn*, and that these sounds should be made within short intervals. A pattern of a cheap and useful horn, known as the American fog-horn, has been forwarded to the committee as one much used at Liverpool; and the committee think it well adapted to the purpose. The pattern accompanies this report.

In conclusion, the committee, fully impressed with the importance of the subject brought under their consideration, are unanimous in their opinion, for the reasons above stated,—

Firstly—That no alterations should be made in the present system of steamers' lights.

Secondly—That the Bright light now exhibited by sailing vessels when under sail or being towed, should be abolished, and that instead thereof such vessels should exhibit, between sunset and sunrise, to any vessel or vessels, a Red light on the port side and a Green light on the starboard side, corresponding to the Coloured side-lights now shown by steamers, without any reference to tacks.

Thirdly—That these coloured lights should be fixed, when practicable; and that when such lights are not fixed, places should be provided in which the lights should be kept on their respective sides, ready for exhibition.

Fourthly—That all lights, whether fixed or exhibited by hand, should be so screened as to render them invisible on the opposite bow or side of the vessel, which the committee consider quite practicable.

Fifthly—That the lights proposed to be exhibited by sailing vessels, should in no case be of less size or power than the lantern which the committee recommend, and which shows an uniform and unbroken light over 16 points of the compass.

Sixthly—That all vessels at anchor, whether steamers or sailing vessels, should exhibit, "where best seen," between sunset and sunrise, a White light, of uniform size and power, in a globular lantern of six inches diameter, at a height not exceeding 20 feet above the hull of the vessel.

Seventhly—The committee consider it desirable further to recommend, that the pilot vessels of the United Kingdom should be designated by particular lights. They would, therefore, submit that, in addition to the Red and Green Lights now proposed for all classes of sailing vessels, pilot vessels should be permitted to exhibit a White light, on a level with the Red or Green light.

Eighthly—The committee having taken in consideration the subject of signals during fogs, would recommend, for the reasons stated in the foregoing report, that steamers should use either the steam-whistle or bell, and that all other vessels should use a fog-horn.

Finally—The committee are of opinion that the above regulations, if approved of by their lordships, should apply to all vessels of the United Kingdom, in every part of the world, unless especially excepted by the Admiralty.

The committee cannot close their report without stating that the evidence adduced proves that the number of collisions is chiefly attributable to the neglect of a "good look-out," and they submit that it should be strongly impressed on the Masters of all vessels that this important duty be more rigidly attended to.

We have the honour to be, Sir,
Your most obedient humble servants,
Hy. D. Chads
F. W. Beechey
B. J. Sulivan
S. Ellerby
Hy. Harris.

P.S.—Patterns of the side light and of the anchor light, are transmitted herewith. The expense of each of the former coloured Red or Green, will be under £1, and of the anchor light, about 7s. 6d. They each hold one-fourth of a pint of oil, which costs about 2d., and will burn about 14 hours.

Ralph Osborne, Esq., M.P., Secretary of the Admiralty.

The British Association.

The British Association, which may be regarded as our Imperial Parliament of science, has just closed its sittings. Its working members have returned home to resume their labours, or are prolonging their tour to lay up a stock of health for future exertions. We confess that we regard this body with great respect. There may be a little trifling here and there, a little display of vanity; but on the whole, substantial good is done by these meetings. Young enthusiasts are stimulated to tread the thorny paths of true science; their crude notions are matured by contact with graver men who have drunk deeper of the stream of knowledge than themselves. Enthusiasm and judg-

ment thus temper each other, and mankind are the gainers. The true value of this Scientific Congress is not to be estimated by the works they have already accomplished,—though these are considerable and important,—nor by the papers actually read before them, so much as by the unseen influence which minds pursuing the same subjects of thought exert upon each other. The fruits of this influence may not display themselves before the British Association; the more valuable results cannot wait for the annual congress, but as soon as they are attained they make their way before the scientific world by speedier channels of communication. There is no need now to apologise for scientific researches,—steam, the electric telegraph, photography, and a thousand other applications of the labours of those who have been content to toil long years in laborious obscurity, are a sufficient answer to all the sneering questions of the *cui bono* school.

A mental inertia on the part of some, resisting all progress; cherished prejudices on the part of others; and the vast amount of ignorance, both among the educated and uneducated, on even common, ordinary, every-day things, cause the general diffusion of science, even on useful subjects, to be anything but what we might have anticipated. The majority still regard the works of Faraday, Wheatstone and Morse much as they would those of Professor Anderson, the Wizard of the North. To take an instance of what is lost to the community by this indifference to scientific education. The Liverpool merchants have recently declined to allow the elements of natural science to be taught their sons in their collegiate establishments, under the impression that such knowledge is unnecessary for commercial pursuits. Now Professor Archer, in his report on the imports of Liverpool, presented to the Natural History section of the British Association, tells us that natural substances of the greatest intrinsic mercantile value daily brought into that port, are constantly cast aside, and lost to science and industry. They are placed in the hands of brokers, who, if they are without special information as to their commercial value, at once reject them as useless, and in all probability they are never heard of again.

Now we maintain that had the British Association done nothing else this year but to bring a fact so startling as this prominently before the public, their labours would not have been in vain. These are days in which we cannot afford to lose the rich treasures which commerce brings us from foreign lands. Had gutta percha been thus thrown aside, how could our submarine electric telegraphs have been constructed? Consider the hundred valuable applications of this substance, and conceive the loss society would incur if it were suddenly taken away. Manchester cries aloud for more cotton—is cotton the only textile material to be obtained from the vegetable world? The papermakers, they too want material, and many new ones have been introduced from the tropics, but when tried they have been found too valuable for the paper maker, and have gone to supply the insatiable requirements of our looms.

So far from natural science being unnecessary in mercantile pur-

suits, Liverpool and Manchester men would find it the best investment they could make for their sons, unless they would have them left far behind in the great race of progress. If they cannot appreciate the value of this knowledge our American brethren will. Mr. G. Emmerson expressed a wish before the Association that Dr. Lankester's indignant remarks on the annual loss that occurred to this country, through such ignorance as that of the Liverpool brokers of the origin and nature of the materials of our industry, might be put into the form of a letter and circulated in America.

The influence of the British Association may be well exemplified by some of Dr. Robinson's remarks in his opening address to the mathematical and physical section. After showing the valuable contributions of that body to the science of astronomy in reducing—that is, rendering available for scientific use—the solar, lunar, and planetary observations made at Greenwich during a century, and the 50,000 star observations of the two Lalandes, he claimed for the Association the origination of those researches on the strength of iron by which Hodgkinson and Fairbairn have added so greatly to the constructive resources of engineers; Dr. Whewell's investigations on the tides, so valuable to the practical navigator; and the great system of magnetic observations, so interesting in their results and now in full operation. His most striking example, however, was that at the previous meeting of the Association in Dublin twenty-two years before, a young man, then unknown, produced the germ of those researches which, commenced under the auspices and largely aided by the grants of the Association, have given to J. Scott Russell a world-wide fame, and rendered possible the construction of those noble ships which have lately carried from the Bay of Dublin their freight of heroes at a speed twice as great as was ever before thought attainable.

Before the mathematical section this year many valuable papers were read on subjects too abstruse for the uninitiated in the higher branches of this section. We must remember, however, that it is such contributions as these, applied by the philosophers, which give to science all its exactness and certainty. In the physical section the communications on meteorites, on modes of obtaining geographical longitude with accuracy, on the improvement of reflecting telescopes, and on phenomena connected with molten substances, may be mentioned as of considerable scientific importance; while the facts contributed by the brothers Schlagintweit on the physical phenomena of the Himalayas and India in general, combined the popular and the useful in very judicious proportions. Perhaps the most amusing paper brought before this section was that of Professor Loomis on the electrical phenomena of the United States, especially that portion of it in which he referred to the startling phenomena produced in the houses of New York in the winter season, when they are heated by stoves to such a degree that the wood becomes excessively dry, all the furniture shrinks and cracks, and the electricity is so abundant that you have only to shuffle across the floor of a room covered with a tolerably thick woollen carpet to convert your body into an electrophorus, or

electrical machine, so that you cannot touch a piece of metal without experiencing a sharp shock of electricity.

In the chemical section many useful papers were read. The prism and hollow wedge for fluids was shown to possess a power which rendered the science of optics still more available than before as a commercial means for the detection of impurities. The superphosphate of alumina, in conjunction with animal charcoal, was demonstrated to have such a capacity for refining sugar as to obviate the necessity of using bullock's blood in that operation. Dr. Barnes and Dr. Odling, two competent authorities, established the fact that our London Thames water was not, after all, quite in so polluted a state as had been represented; the organic matter in the river being chiefly in a state of vitality, and not of putrefaction.

The other sections of the Association yielded a fair harvest of information on their respective subjects; and we feel assured that when the report of this year's proceedings is published it will constitute an important contribution to our existing stock of scientific knowledge. The welfare of England depends too intimately on the advance of science to render us indifferent to its progress, and we cannot afford to lose anything which would stimulate its improvement. We, therefore, heartily thank the Association for what they have done, and trust there will be no remission in their labours, so that their meeting next year at Leeds, under Professor Owen, may be not less successful than that of the past session.—*Daily News.*

Punishment for Breach of the Passengers' Act.

The *Melbourne Argus* gives the following decision upon a breach of the Passengers' Act:—

At the Williamstown Police Court, on the 15th of June, Archibald Gray, Master of the ship *War Spirit*, from Liverpool, appeared to answer to the information of Mr. Charles Broad, senior assistant emigration officer, for breaches of the 35th section of the Passengers' Act, 1855, which enacts that three quarts of pure water shall be issued daily to each passenger, exclusive of the quantity required to be issued for cooking purposes. A large number of passengers were in attendance.

Mr. Broad informed the Bench that the *War Spirit* sailed from Liverpool on the 9th of March, and that for thirty days of the voyage the passengers had been placed upon an allowance of three pints of water per diem for every purpose. The ship was only ninety-five days on the passage, and by the Act she ought to have had a full supply of water on board for 140 days, and yet on the fifty-ninth day out it was found necessary to put the passengers on short allowance. He did not attribute any blame personally to the Master, of whom the passengers spoke favourably. The ship was chartered by James Baines and Co., of Liverpool, who found water and provisions, and the Master only joined the vessel a few days before the time of sailing; but a serious breach of the Act had been committed, and the charterers could only be reached through the Master, who, in his turn, could have his remedy against them.

He called James Kelly, a passenger, who corroborated what he had stated, and added that the Master had admitted to him that he believed there was only eighty or ninety days' supply of water on board when they left Liverpool.

Mr. Reed, who appeared for the defence, said—He was prepared to admit the deficiency of water, but said the Captain, having found that five of his casks had leaked out, had exercised a sound discretion in curtailing the supply, and that the Master endeavoured to condense salt water, and succeeded in producing fifty gallons a day, which the passengers could have had if they liked. He blamed the emigration officer at home, whose duty it was to have assured himself there was a proper supply of water on board before the vessel sailed.

Mr. Broad stated that, with reference to the condensed water, the passengers assured him it tasted of salt and lead, and could only be used for washing purposes.

Mr. Read—The doctor of the vessel stated it was wholesome and good water.

Seventy-five witnesses were sworn, and corroborated Kelly's statement.

The resident magistrate said he considered the case fully proved, and he fined the defendant a penalty of £3 for each offence, one moiety to the passengers, and costs, £8 1s. 6d., amounting in all to £233 1s. 6d.; in default, three months imprisonment. Mr. Read applied for time. Mr. Broad pressed for immediate payment, inasmuch as the passengers would be put to further expense in coming down to receive compensation if any delay occurred. The bench ordered immediate payment, stating that the penalty would have been higher did they not so intend it. The master said he was prepared to go to prison, and he remained in custody at the rising of the Court.

The Navigation of the Neva.

The following notice, issued by the Russian Minister of Marine relative to the navigation between Cronstadt and St. Petersburgh, has been posted at Lloyd's:—

Russian Consulate General, London, 17th—29th August, 1857.

Notification,—Captains of Merchant vessels of a great draught of water, having, notwithstanding the injunctions to the contrary of the competent authorities of the ports of Cronstadt and St. Petersburgh, and even without pilots, entered the channel of the Neva and run aground, causing thereby great obstruction to the navigation of the channel, the Imperial Ministry of the Marine has issued the following regulations:—

The captains of merchant vessels are enjoined,—

1.—To conform themselves strictly to the directions of the commanders of the guard ship and lightvessel.

2.—Not to enter the channel unless they have a pilot.

3.—Not to attempt the passage from Cronstadt to St. Petersburgh, or *vice versâ*, if their vessels when loaded draw more than eight feet, and in the contrary case, either to lighten the vessel or to come to an anchor upon the first requisition to that effect made by the commanders of the guard ship and lightvessel.

4.—Any vessel of whatever nation or dimensions which, notwithstanding the injunctions of the competent authorities, shall infringe the above mentioned regulations, will be liable to pay a fine of 25 silver roubles.

RECENT BOTTLE PAPERS.*

(See Chart in our last Number.)

No.	Ship.	Signature.	Where Left.			Where Found.		Interval.
			When.	Lat. N.	Lng W.	Coast.	When.	
				°	°			YrDys
10*a*	Wasp	Hay	3 Nov. 52	41 1	16 0	France	26 Dec. 52	53
11*b*	Resistance	Bradshaw	7 Sept 52	43 0	11·6	France	2 Feb. 53	148
17*a*	Dee	Smith	11 No. 52	43·0	13·3	France		
29*a*	Lady Seale	Booth	7 Nov. 52	41·2	18·3	Cumberland	31 Dec. 52	54
114*a*	Dee	Newenhm.	17 No. 52	18·5	79·3	Mustang I.	1 Jan. 53	45
93*a*	Derwent	Newenhm.	26 Apr. 53	9 5	58 7	St.Thos., E.end	5 June 53	40
14*a*	Myrmidon	Joliffe	29 Aug. 51	36·3	12·4	Turks Island	5 May 53	1 250
	Fidelia	Watt and Berwick.	13 Mar. 52	Banks N		France	14 Apr. 53	1 32
44*b*	Amita	Alzena	19 July 52	0·38	16 5	not said	Sept. 52	
45*c*	St. Ia	none	not said	8·78	28·8	C. St. Augustin	28 Dec. 52	
21*a*	Diligence	Elliot	30 May 53	55 0	16·4	Ireland, Mayo.	17 July 53	48
	Magdalena	Newenhm	14 Apr. 53	off S	ail R	Crab Island	19 Apr. 53	5
101*a*	Dauntless		2 Nov. 52	17 7	67·1	Matagorda	21 Jun. 53	80
117*a*	Philadelphia	Lynn	25 Apr. 53	22·1	85·8	Galveston	30 Jun. 53	66
1*a*	Brilliant	Joss	9 June 54	78 2	1 5	Iceland, N W.c.	8 Mar. 55	272
105*b*	Mariner	Cochrane	9 Aug. 55	26·9	67 5	Eleuthera	1 Nov. 55	84
53*c*	Mary	Paul	28 No. 53	15·6	81·2	Tampico	20 Oct. 54	326
53*d*	Pickwick	Graves	14 Apr. 55	40·0	31 4	Terceira	26 May 55	42
48*b*	Helen	Johnston	9 Sept. 54	59 0	26 0	Jutland, W.est.	2 July 55	296
	Phœnix		28 Sep. 53	59 5	29·0	Norway	11 Mar. 55	1 164
106*d*	Vulcan		18 No. 53	33·0	74·0	Bermuda	12 Apr 54	145
52*d*	Actæon	Purvis	7 Jan. 57	0 18	30·3	Trinidad	29 May 57	142
52*e*	Highflyer	Shadwell	13 No. 56	4 2	24·1	Africa	Mar. 57	109
47*d*	Arab	Graham	17 July 53	52 8	26·1	W. Finmark	not stated	
92*c*	Perseverance	McDonald.	3 Feb. 57	4 7	47·1	Jamaica, E. end	31 July 57	178
10*a*	Hermes	Gordon	12 No. 56	48 6	10·9	Cape Prior	24 Aug. 57	285
60*a*	Scindian	Cammell	6 June 56	40 0	36·3	Tenerife	15 Aug. 57	1 70
52*e*	Perseverance	McDonald.	20 Feb. 57	4·08	31·0	Amazon River.	20 Mar. 57	28
66*a*	Dolphin	Murray	8 Feb. 57	9 7	39 3	Martinique	4 May 57	85
71*b*	Cato	Emmons	8 Feb 57	10·5	44·7	Grenada	23 May 57	104

BRILLIANT.—No. 1 *a*.

Foreign Office, August 15th, 1855.

Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the Lords Commissioners of the Admiralty, a copy of a despatch from

* That the *Nautical Magazine* should be unknown to the *Edinburgh Quarterly*, we do not marvel at; but that even the celebrated "*Household Words*" of Mr. Dickens should be equally so with the Northern "Critical Journal," surpasses all expectation! The author of the paper of the Physical Geography of the Sea, (of which paper we need say nothing) in the April number of the Northern Journal, has attributed all our labours in preserving bottled papers to the late Admiral Beechey*—who if he were living would be the first to disclaim them. As the earlier appearances of the Bottle Chart in the *Nautical*, 1843-8 &c., may not be within the reach of the reviewer, we refer him to our number for September last. Should even this be out of his reach, some valuable friend will perhaps kindly place in his hands the number of the *Household Words* for 4th Feb. 1854, where, at p 529, he will find the BOTTLED INFORMATION which he seems to require without the name of Admiral Beechey.

* P. 375, *Ed. Quarterly*, Jan.—April, 1857, where is read,—"The chart drawn up by Admiral Beechy [meaning really Admiral F. W. Beechey (see p. 553)] representing the tracks of more than a hundred bottles," &c.

her Majesty's Minister at Copenhagen, forwarding a paper addressed to the Editor of the *Nautical Magazine* by the Master of the British ship *Brilliant*, and found in a bottle on the coast of Iceland.

I am, &c.,

E. HAMMOND.

The Secretary to the Admiralty.

Copenhagen, August 8th, 1855.

My Lord,—With reference to my despatch, No. 183, of the 6th instant, I have the honour to transmit herewith the translation of a letter which I have received from Mr. Johnsen, of Iceland, enclosing a piece of paper taken from a bottle found on the coast of that island on the 8th of March last, in North latitude 65° 59′, and 30° West longitude from Copenhagen, which appears to have been thrown into the sea on the 9th of June, 1854, by Capt. Joss, of the *Brilliant*, of Peterhead, in North latitude 78° 10′ and West longitude 1° 30′, with a view to ascertain the currents prevailing in that part of the Northern Ocean.

Your lordship will observe that the paper is addressed to the Editor of the *Nautical Magazine* in London.

I have. &c.,

ANDREW BUCHANAN.

Earl of Clarendon, K.G., &c.

Translation.

On the 8th of March, a. c., there was found at the bottom of the Skialfandi Bay, within Thingœra Sysla (county or district) in the North and West Art of Iceland, in 65° 59′ N. lat., and 30° long. West of Copenhagen, a bottle containing the inclosed letter from Capt. Joss, which I hereby transmit to your Excellency for your information and further disposition.

At the Trading Factory of Husavik, on the North coast of Iceland, July the 2nd, 1855.

J. JOHNSEN, *Commercial Agent.*

To the English Minister at Copenhagen.

June 9th, 1854.

Whale fishing ship *Brilliant*, of Peterhead, W. A. Joss, Master.

Lat. 78° 10′ North.

Long. 1° 30′ West.

No fish up to this date. Seen a few. Ice in a bad state for fishing, close pack from 80° 40′ North, having been as far as 80° 15′ N. to 76° 30′ N., only three fish having been got up to this date by the fleet. If this is found please to forward it to the Editor of the *Nautical Magazine* for the use of Current Chart constructing by him. Please to send the date when found with lat. and long. or name of the place, and

Oblige, yours, &c.,

W. A. Joss.

This is No. 4 since the 20th of May.

To the Editor of the Nautical Magazine.

[This is an interesting experiment, and we regret, for the sake of the author of it, that it falls *without* the limits of our Bottle Chart. It is the Northernmost that we have met with, it shows very satisfactorily the Southerly drift along the East coast of Greenland, and seems to have had an almost miraculous escape through the ice, so as to have been safely deposited on the coast of Iceland,

on the Western extreme of which it has been found. The course from its place of departure has been S.W. 830 miles, for 272 days, giving three miles per day,—which, however, would be much less than its real rate, as, in all probability it lay some days unnoticed. The intention of its author has been well realized; and he will have the satisfaction of knowing that the original of his letter is deposited safely with the rest of our bottle papers in the Admiralty. We have named it No. 1 *a*.]

(To be continued.)

An Interesting Pirate.

An American, named Eli Boggs, was tried at Hongkong on Wednesday, July 1st, for piracy and murder. His name would do for a villain of the Blackbeard class, but in form and feature he was the hero of a sentimental novel; he was a great dandy as well as cutthroat. As he stood in the dock, bravely battling for his life, it seemed impossible that that handsome boy could be the pirate whose name had been for three years connected with the boldest and bloodiest acts of piracy. It was a face of feminine beauty. Not a down upon the upper lip, large lustrous eyes, a mouth the smile of which might woo coy maiden, affluent black hair not carelessly parted, hands so small and so delicately white that they would create a sensation in Belgravia,—such was the Hongkong pirate Eli Boggs.

He spoke for two hours in his defence, and he spoke well,—without a tremor, without an appeal for mercy, but trying to prove that his prosecution was the result of a conspiracy wherein a Chinese bum-boat* proprietor and a sub-official of the colony (both of whom he charged as being in league with all the pirates on the coast) were the chief conspirators. The defence was of course false. It had been proved that he had boarded a junk and destroyed by cannon, pistol, and sword, fifteen men: and that having forced all the rest overboard he had fired at one of the victims who had clutched a rope and held on astern. No witness, however, could prove that he saw a man die from a blow or shot struck or fired by the pirate.

The jury, moved by his youth and courage, and straining hard their consciences, acquitted him of the murder, but found him guilty of piracy. He was sentenced to be transported for life.

There were 200 junks lying in the harbour at the time of the trial, and every one of them armed with at least two heavy guns,—some have twelve. Probably one quarter of these are pirates who live principally by piracy, and adopt the coasting trade only as a cover to their real profession.

The passage boats to Macao are little armouries. There are cannon upon deck and revolvers in every belt. But so it was on board the *Queen* when the cannon was turned round and fired into the cabin on the passengers absorbed in tiffin. Further precautions, however, are now taken. In the *Fei Ma* the Chinese passengers are put down into the hold, 12 feet deep, and the ladder is taken away A sailor keeps guard over them with a drawn cutlass. One of the Yankee ships has an iron cage on deck, into which the Chinese passengers are invited to walk, and are then locked up. The Peninsular and Oriental boat has a better but more costly precaution; she carries no Chinese passengers.

* [A wretched instance of corrupt nautical phraseology. For decency's sake we shall term it in future "boom-boat,"- a boat lying at the Guest-wharf-boom,—selling anything.—Ed.]

Nautical Notices.

Particulars of Lights Recently Established.

(Continued from p. 503.)

Name.	Position.	Where.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
28. Santa Cruz	Mole Head	Tenerife	F.	21	4	Est 1st July. Red light.
29. Avran Islands	North Light, 53° 8·9′ N., 9° 51·5′ W.	Ireland, W. Coast	R.	115	16	Est. 1st Dec. Once in three minutes.
Ditto	South Light, 53° 2 7′ N., 9° 31·5′ W.	Ditto	F.	110	15	Est. 1st Dec. At the same time the old light will be discontinued.
30. Cape Roman	33° 1·1′ N. 79°17·1′W.	Unit. States, S. Carolina	R.	150	17	Est. 1st Jan., '58. Once every minute.
Charleston	32° 41·9′ N., 79°52·5′W.	Ditto	F.	133	20	At same time changed from Revolving. A beacon light seen in line with it gives best water over the bar.
31. Montauk Pt.	41° 4·2′ N, 71°51·1′W.	Long Island, New York	Ff.	160		Est. 1st Jan., '58. With a flash every 2 minutes.
Gt. West Bay or Shinnecock	40° 51′ N., 72° 30′ W.	Ditto. Pond Quoqua Pt	F.	160	20	Est. 1st. Jan., '58. A beacon light on 14th Aug., and continued every night afterwards on the House at N. Hospital Wharf, Norfolk and Portsmouth, Virginia.
32. Port L'Orient						No change in the character and lines of direction of the leading lights.
33. Punta Arenas	9° 48·7′ N., 84° 45′ W.	Gulf Nicoya	F.	65	10	

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.
m Mean level of the sea.

[The following Notices are given in a separate form, as they could not be condensed within the limits of our Table.]

British Isles,—*Variation of the Compass.* [No. 25.]—The following information respecting the variation of the compass in the British Islands and adjacent seas, is published in order—1st. To apprize mariners of the decrease of the variation, which in the last twenty years has amounted to one quarter of a point, and at present averages 6′ annually. 2ndly. To enable mariners, chart makers, and agents for the sale of charts, to correct the numerous charts and sailing directions now in use, all of which have the variation incorrectly marked.

From Shetland, the Orkneys, and Hebrides, to the Northern coasts of France between Calais and Ushant, the present general direction of the lines of equal variation is S.S.W. and N.N.E., (true,) ranging in amount from 21° to 28° Westerly.

Eastern Coast.

At Lerwick and Sumburgh Head ..... 25 ° W.
Pentland and Moray Firths 25¾ „
Buchanness and Fifeness.. 24¾ „
Holy and Farn Islands .. 24 „
Shields, Sunderland, and Hartlepool ..... 23½ „
At Flamborough Head..... 22¾° W.
The Wash and Dudgeon.. 22 „
Leman and Ower, Yarmouth and Orfordness ..... 21¼ „
River Thames ..... 21½ „

Southern Coasts.

At North and South Forelands and Dungeness	21 °W.	At Start Point	23 °W.
Beechey Head	21½ „	Lizard Point	23½ „
St. Catherine's, I. of Wight	22 „	Scilly Islands	24½ „
Bill of Portland	22½ „	Cork Harbour	26 „
		Cape Clear	26½ „

Western Coasts.

At Valentia and the Blasquets	27½°W.	At Innistrahul Lighthouse	27 °W.
Arran Islands	27½ „	Skerryvore Lighthouse	27½ „
Achil Head	28 „	Bara Head	27¾ „
Tory Island	27½ „	Butt of Lewis	28 „

Northern Coasts.

At the Minch and Little Minch	27½°W.	At North Ronaldsha, Orkneys	25¾°W.
Cape Wrath	27 „	Foula Island, Shetland	25¾ „
Thurso	26 „	Unst Island, Shetland	25 „

Irish Sea and Bristol Channel.

At Mull of Cantire	26½°W.	At Dublin	25¾°W.
Mull of Galloway	25½ „	Smalls Lighthouse	24¾ „
Isle of Man	25 „	Tuskar Lighthouse	25¼ „
Liverpool	24 „	Lunday Island	24 „
Holyhead	24¾ „	Bristol	23 „

Northern Coast of France.

At Calais	20¾°W.	At Casquets, Alderney and Guernsey	22¼°W.
Havre	21 „	Ushant	23 „
Cape Barfleur	21¼ „		
Jersey	21¾ „		

ENGLAND—WEST COAST. ROCKS IN BROAD SOUND.—[26.]—Several rocks having been lately discovered in the vicinity of Skokham Island and Broad Sound near Milford Haven, during the progress of the Admiralty Survey under Comdr. Alldridge, R.N., the following notice is published for the benefit of the mariner.—

1. A rock awash lies to the Northward of the East end of Skokham Island, 200 yards N.E. ¼ N. from the Stack.

2. A rock with 2½ fathoms on it lies in the same direction from the Stack at 400 yards off.

3. Two other rocks, with 3½ fathoms, exist at 533 yards N.N.E. ¼ E. of the Stack. All these rocks are directly in the track of vessels passing through the Sound to or from Milford Haven.

4. To the Southward of Skokham Stack there are also rocks with 3½ fathoms at 820 yards S.S.E. ¼ E. from the Stack.

5. To the Westward of Skokham Islands rocks have been found in the Race known as the Wild Goose Race, with 4½ and 5 fathoms, at 1,300 yards N.W. ¼ W. from the West end of Skokham Island, and the West end of Skomer Island, bearing N b.E. ½ E.

6. To the Northward of Skokham Island there are rocks with from 3¾ fathoms to 4½ fathoms on them, which lie midway between and in a line from the West end of Skokham Island and the Mewstone of Skomer Island, or 1½ mile N.W.b.N. from Skokham Stack.

7. A dangerous rock with 3 fathoms on it lies directly in the track of vessels passing through Jack Sound to or from Milford Haven, it lies nearly ¼ mile

W.b.S. ¼ S. from the Bench Rocks, with the outer point of Gateholm Island bearing S.E.b.S. 1,733 yards distant.

8. A rock also lies off Long Point, bearing W.N.W. ¼ N., three quarters of a mile distant, with 4½ fathoms on it, the outer part of Gateholm Island bearing N.b.W. ¼ W.

All bearings magnetic. Var. 24° 40′ W. in 1857, decreasing 6′ annually.

MEDITERRANEAN, BLACK AND RED SEAS,—*Variation of the Compass.*—[No. 27.]—The following information respecting the variation of the Compass in the Mediterranean, Black, and Red Seas is made public in order to apprize mariners of the gradual decrease in the Variation, which in many places, since the commencement of the present century, has amounted to more than half a point. The average rate of annual decrease at the present time appears to be about 3′ at the western limits of the Mediterranean, 5′ in the central portion, 6′ in the eastern limits and the Black Sea, and about 7′ in the Red Sea:—

Spain, France, and Italy.

Gibraltar	20 ° W.	Genoa	15½° W.
Cape de Gat	19 „	Leghorn	15 „
Cape Antonio and Tarragona	18½ „	Naples	13¼ „
Barcelona and Cape Creux	18 „	Cape Spartivento	12½ „
Marseille and Toulon	17 „	Gulf of Taranto	12 „

Principal Islands.

Port Mahon (Minorca)	17 ° W.	Malta	13¼° W.
Corsica and Sardinia	15½ „	East Coasts of Sicily	12¾ „
Pantellaria and West Coasts of Sicily	14 „	Ionian Islands	10½ „

North Coast of Africa.

Cape Spartel	20 ° W.	Tripoli	13¾° W.
Cape Ferrat	18 „	Ben Ghazi	11 „
Algiers	17¼ „	Bombah	9¾ „
Cape Serrat and Galita Isle	15¼ „	Alexandria	7¼ „
Cape Bon and Skerki Shoals	14½ „		

Coasts of Greece, &c.

Corinth and Cerigo Island	9½° W.	Athens	9¼° W.

Archipelago in general from 9° to 8° W.

Coasts of Asia Minor.

Dardanelles and Smyrna	8 ° W.	Iskanderun Gulf	4 ° W.
Alaya in Karamania and West end of Cyprus Island	5¾ „	Acre	5 „

Black Sea.

Entrance to Bosphorus and Constantinople	7 ° W.	West Coasts of Krimea	5 ° W.
Mouths of Danube	6½ „	Kertch Straits	3½ „
Odessa	6 „	Eastern or Circassian Coast	2½ „
		Sinope	4 „

Red Sea.

Suez	6 ° W.	Jibbel Teer	4 ° W.
Kosseir	5½ „	Perim Island	4¼ „
Seberget Island	4½ „	Aden	2¾ „

PACIFIC OCEAN. CENTRAL AND SOUTH AMERICA.—[No. 33.]—*Rock in Herradura Bay.*—A dangerous rock has been discovered in Herradura Bay, on the Eastern shore of the Gulf of Nicoya. It has a depth of only 2 feet on it at low water of spring tides, and is sometimes visible when there is much swell on. It lies nearly in the middle of the bay, with a house on the beach bearing N.E. ¼ N. eight cables' length, and Cano pinnacle S.W.b.S. nine cables' length. At full and change of the moon the tide rises about 9½ feet.

Shoal off the River Lempa.—An extensive shoal, having only 12 feet of water over it, on which two vessels have recently struck, is reported to lie off the River Lempa, about 10 miles off shore, and directly in the track of vessels bound from La Union to Acajutla. The shoal is about 3 miles long, in a N.E. and S.W. direction, and from its centre the volcano of San Miguel (6790 feet high) bears N.N.E. It lies in lat. 13° 2′ N., long. 88° 19′ W. of Greenwich, nearly. There is reason to believe that the whole of this coast of Central America is placed in our charts about 8 miles too far North.

Rocks in Smyth Channel, Magellan Strait.—A shoal in Smyth Channel, at the North-West end of Magellan Strait, was struck upon by H.M.S. *Vixen* when steering to the northward and attempting to take the passage between the East side of Long Island and King William Land. It extends across the passage, from the shore under Rose Hill to within half a cable's length of the beach on Long Island, has only 6 feet water on it, and the depths decrease suddenly from 25 to 4½ fathoms close to. The bearings from the vessel when aground were, the South-East etxreme of Long Island S. ¼ E.; and the highest point of the Island W.b.S.

This extensive shoal, with a patch of rocks immediately in the fair way (steep to, with only 9 feet water on them), renders this passage unnavigable; and vessels should follow the channel recommended in the Sailing Directions for South America, Part 11, page 264, viz., to the Eastward of the Otter Islands, and then between the Summer Isles and Long Island.

All bearings are magnetic. Variation in 1857: in Gulf of Nicoya, 7¼° E.; off the Lempa, 7¼ E.; off N.W. end of Magellan Strait, 22¼ E.

GODREVY ISLAND.—An advertisement is before us, in the *Times*, for tenders for the erection of a *stone lighthouse tower* on the Island of Godrevy in St. Ives Bay. There must surely be some mistake in the name here. Can it be possible that the Trinity House would ever place a light *a mile and a quarter* inside the *Stones* off St. Ives, a danger too well known to seamen. This indeed would be increasing a danger by lighting vessels *to it*, and helping them to destruction while looking after safety! But the document is actually dated July 16th, 1857.

SHOAL REPORTED N.W. OF THE AZORES.

We have received the following important account of the appearance of a shoal to the N.W. of the Azores, which we hope will some day be explored by the present method of deep sounding, which is evidently at no distant day to show up the bed of the Atlantic in various directions across it. In regard to the present shoal, the direction in which it lies from the Azores renders its existence most probable, as it takes the general line of these islands towards the Banks of Newfoundland. There is abundance of work of this kind for

the lead to do in this way, and we hope to see the *Dolphin's* work of the U.S. Government followed up by some other *Dolphin* of our own.

Falmouth, 19th September, 1857.

Sir,—I have the honour to acquaint you that on the 6th of September last, on my voyage from Rio Janeiro to Cowes or Falmouth for orders, I passed a shoal laid down in J. S. Hoob's new chart of 1857 to be in latitude N. 40° 26′, and longitude W. 36° 10′, but described as uncertain, and discovered in the year 1769, with only five fathoms of water over it; and on the above mentioned date I found myself near this position, with a strong wind from N.N.W., steering E.b.S., by compass, and when taking the meridian altitude of the sun, I observed a change in the colour of the water. The sea was very rough, and in a moment commenced breaking over the vessel, and causing her to roll very much. I was much alarmed and expected the vessel would strike every moment. This agitation in the water continued for a time of twenty minutes, and after that time the regular waves again commenced, and the colour of the water changed also. The vessel was going at the rate of seven knots an hour, and according to the heavy breakers breaking over the vessel, which prevented me from sounding, but I am convinced that all this was caused by the vicinity of shoal water; and to close I may add that the position in latitude as well as longitude is very near the truth, as my chronometer, which is No. 390 by Daniels, Liverpool, proved to be correct when I made the Lizard on the 18th ult. This information should be made public, if possible, as the shoal is dangerous in blowing weather.

CHARLES JOHN WAHLSTRIN, of Helsingfors,
Commanding the Russian barque *Runeberg*.

Capt. G. A. Halsted, Secretary, Lloyd's, London.

EXTRAORDINARY STEAMING.—The *Tamar*, one of the West India Company's fleet, commanded by Capt. Jellicoe, arrived at Southampton on Saturday the 5th of September at 1.30 p.m., from the Brazils, in the remarkably short period of 22 days 4 hours from Rio de Janeiro, inclusive of all stoppages at intermediate ports. She made the run from the Rock of Lisbon in 2 days 21 hours, and 15 minutes, outstripping in speed any other vessel which had ever performed the same passage. The *Tamar* was not due at the Post Office till the 12th, but she has usually reached this port by the 7th or 8th of the month, and on one occasion arrived here on the 6th, so that the late voyage was performed in at least one day less than any of her previous rapid trips. Before leaving Southampton on the 9th of July, the *Tamar* had undergone a thorough overhaul and refit, which seems to have added to her rate of speed. This fine steam ship is appointed to take out the Australian mails to Alexandria to-day, (Sept. 12,) the whole management of the line being now in the hands of the Royal Mail Company.—*Hampshire Independent.*

AN INCIDENT IN THE VISIT OF THE EMPEROR NAPOLEON *in July last to Her Majesty.*—Shortly after passing the Squadron House an incident occurred which excited marked attention, as showing the cordial feeling which exists between the sovereigns of the two great countries of Europe, and it was the subject of frequent comment. When the *Fairy* came alongside *La Reine Hortense* (the Emperor's yacht) the royal standard of England was lowered from the truck to about three or four feet from the deck, the Imperial standard was then joined with it, and the standards of the two sovereigns

were raised to the top of the main-mast together. This compliment and friendly recognition of the imperial visitors elicited general and hearty congratulations on the amity between the two nations. The *Fairy* shortly after this steamed on to near the place where the *Victoria and Albert* yacht was lying, when the royal party stepped into the state barge and were taken alongside, and they went on board the large royal yacht together. As soon as they got on board the imperial standard of France was displayed from the main, with the Union Jack at the mizen, and the Admiralty flag at the fore. She immediately got under way, and proceeded down the Solent, followed by the *Fairy*, the French flag being again lowered at the Castle as they passed. The Emperor and the Empress and her Majesty and Prince Albert remained on deck, and, as they passed the different French yachts, they manned yards, and a similar compliment was observed on board several English vessels. The *Victoria and Albert* proceeded down the Solent as far as Yarmouth, and then returned. As she passed, the vessels manned yards as before, and everywhere the illustrious party was received with the greatest enthusiasm. The royal party reached Osborne shortly before eight o'clock.

ADVANTAGES OF THE SOUTHAMPTON DOCKS.—It is not long since H.M.S. *Himalaya*, 3,500 tons (iron troop-ship), was ordered round from Plymouth to Southampton, for the purpose of being placed in dry dock, there to be coated with the composition of Messrs. Peacock and Buchan, previous to her long voyage to China; and the fine steam-ship *Teutonia*, 2,000 tons, arrived on the same day from Hamburgh, to be docked for the same purpose. Both ships steamed into the tidal basin of the Southampton Docks, and thence into the large graving docks, the *Himalaya* drawing 21ft. 2in. The *Teutonia* entered the west graving dock as the screw-ship *Jason* vacated it. The gates of each dock were then immediately shut, and the powerful pumps set in motion to discharge the water from the graving docks. Both ships were on the blocks and shored up in three hours from the time they entered. The *Teutonia* was scraped, received two coats, and came out of dry dock within forty-eight hours; took on board 500 tons of coal and a large cargo for Lisbon and the Brazils, and proceeded to sea within three days of her first arrival. The *Himalaya*, having been coated with the same composition, was taken out of dock on the third day, and immediately proceeded to Spithead under steam. It is worthy of remark that this large ship was fully coaled and provisioned for her voyage, and although drawing upwards of 21ft., was enabled to dock at neap tides one hour before high water. Mr. Hedger, the dockmaster, was entrusted by the Admiralty authorities with all the arrangements. The *Himalaya* takes out a considerable quantity of Messrs. Peacock and Buchan's composition for the use of the iron ships forming the China fleet.

THE GREAT BRITAIN.—The *Great Britain* is now in the Sandon Graving Dock, being coated with Messrs. Peacock and Buchan's composition, which has at length established itself the favourite composition for preserving and keeping clean the bottoms of iron ships. Besides keeping the bottoms clean for a voyage round the world, and preserving the iron plates, it is found to add speed to the ships using it, by becoming, shortly after immersion, slimy, like the back of a fish. The *Persia*, *Atrato*, *Simla*, *Nubia*, *Himalaya*, and other fast steamers, have always used this composition from the commencement of their career, and still continue it with unimpaired speed.—*Liverpool Daily Post.*

CAPTURE OF A BRITISH SHIP BY PIRATES.—Intelligence has been received at Lloyd's, under date, Kingston, Jamaica, August 27th, of the capture of the British ship *Endeavour* by a piratical vessel, and the murder of nearly all on board. The *Endeavour* was on a trading voyage on the Indian coast. On the 1st of August, about fifteen miles from Bahia Heads, when lying becalmed, a number of boats, filled with armed pirates, put off from a vessel that had followed the *Endeavour* for several days previously and, despite the gallant efforts of Captain Durant and his men, succeeded in boarding the vessel. The Captain and thirteen of the crew were instantly murdered in cold blood. Seven of the men, witnessing this, contrived to get over the side into one of the boats and made their escape. After being on the ocean four days and nights, without food or water, they were picked up by the *Conway* steamer, and landed at Kingston on the 27th August.—*U. S. G.*

DEATH OF LIEUT. HOLMAN, R.N.—Lieut. James Holman, F.R.S. celebrated as "The Blind Traveller," died on the 28th of August in John Street, Trinity Square, London. The deceased officer had held the appointment of Naval Knight of Windsor, under the will of Samuel Travers, Esq., since 1812. Prior to being afflicted with blindness, Lieut. Holman performed much good service. He entered the Navy in 1798, was made a Lieutenant in 1807, and continued actively employed until 1810, when he was invalided on account of defective vision. Lieut. Holman wrote a narrative of his journeys through France, Italy, &c., which he published in 1812, and also an account of his voyage round the world, and his travels in Africa, Asia, Australia, and America, which he undertook after the loss of his eye-sight, published, 1834–35, in four volumes.

GABO ISLAND, *Australia.*—We have received the following information from a correspondent concerning the anchorage at this island, which till lately has been all but a *terra incognita*:—On the latest charts by Captain Stokes there is merely the notice of a landing-place on the N.W. side of Gabo Island; as, however, the anchorage of which I am about to speak is something more than a mere landing-place, I think it deserves particular mention. Although known to several coasting vessels, yet the majority of our coasters do no know any consistent facts concerning this shelter. It is a small cove exactly on the N.W. side of the island, with the small islet of Tallabunga almost in one with Genoa Peak, if anything a little open to seaward. Any vessel running in, especially if disabled, and with the wind from S.E., must keep quite close ao the island; to close in fact as to hardly see more than the top of the lighthouse above the cliffs, in order to haul sharp round the southern horn of the little bay, and anchor in five or four and a half fathoms water, where a frigate might ride more safely than in many a harbour of greater pretensions. This southern horn is the first distinct point, and can be easily discerned in the daylight. Round this small harbour stand the dwellings of the stone-cutters and light-keepers in all about seventy people. The granite of the island is very beautiful, and must be capable of a polish like marble. It is red and glittering, and, as far as I am able to judge, the finest stone in Australia. When vessels are required to take off a quantity, a red cross is set up on the S.E. side of the island, and 11s. per ton paid as freight to Sydney or Melbourne.—*Melbourne Argus.*

THE MONSTER STEAMSHIP.—The New York Board of Aldermen have adopted a proposition to send an agent to induce the proprietors of the steamship *Great Eastern* to send that vessel to their port.

SAXBY'S SPHEROGRAPH.

We have received a paper from Mr. Saxby, too late for our present number, but willingly make room for the following:—

Sir,—As the inclosed copy of a letter received this day will have its influence on the maritime world, may I, if not too late for insertion, beg the favour of its appearing in your September number.

I am, &c.,

S. M. SAXBY.

To the Editor of the Nautical Magazine.

Local Marine Board, 71, Cornhill, London, August 20th, 1857.

Sir,—The Board at their meeting to day, and in the presence of Mr. Boulter J. Bell, their Examiner in navigation, and Captain J. Domett, Secretary and one of the Examiners in seamanship, had much pleasure in witnessing the quickness and correctness with which, by your spherograph, you got a great circle course and the distances on it, and ascertained the latitude at sea, the variation by amplitude and azimuth, the time at sea, and found the true distance between the moon and the sun or star for obtaining the longitude.

The Board are of opinion that your tables will be found of great practical service at sea, and recommend them to the favourable consideration of nautical men.

I am, &c.,

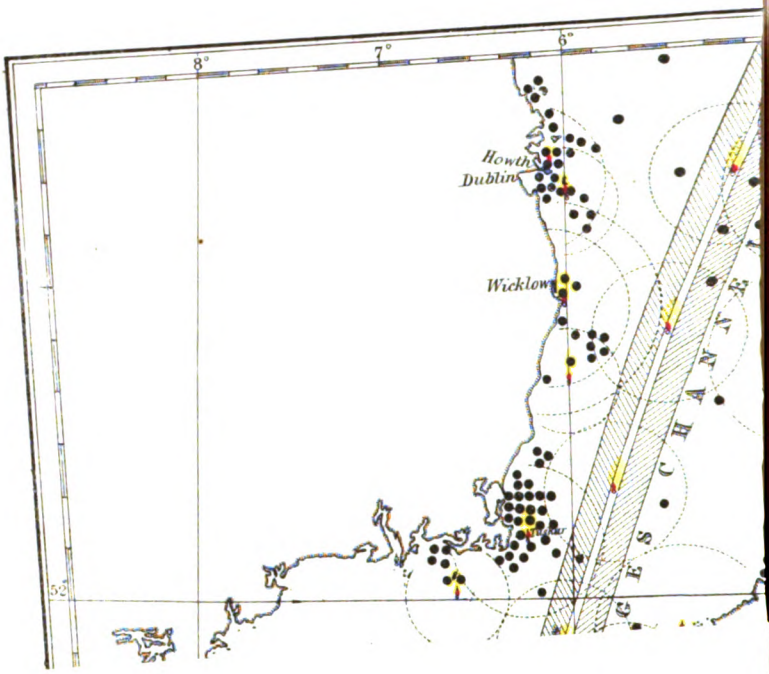
D. DUNBAR, *Chairman.*

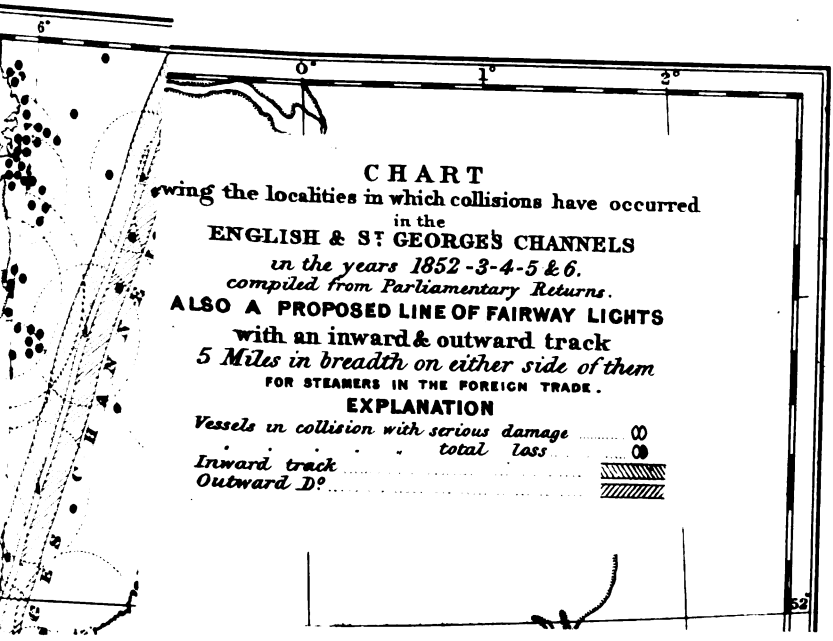
S. M. Saxby, Esq.

BURNING OF THE HARKAWAY.—The *Atrato*, Sept. 10th, at 8h. a.m., in lat. 46° 30′ N., long. 24° 20′ W., spoke and boarded the English barque *Sarah Dorothy*, of Newcastle, eight days from Larne, bound to St. John's, N.B. She received on board from that vessel, the Master, George Thompson, the first and second Mates, and ten passengers, rescued from the United States ship *Harkaway*, when destroyed at sea by fire, on the 7th September by spontaneous combustion of her cargo, consisting of spirits of turpentine, resin, and cotton. All hands were saved. The *Harkaway* had sailed from Charleston, United States, August 6th. Early in the night of September 5th symptoms of fire appeared in the hold. Every means were judiciously, though ineffectually, applied for its suppression; boats prepared, and passengers told off. Appearances for a while favoured the exertions made. Subdued, but not extinguished, the suppressed smouldering below continued to spread all the ensuing day and following night. The fate of all on board now seemed inevitable. Universal, then, was their joyful sense of deliverance, under Providence, as with the dawning of the second day th y saw relief at hand—the *Sarah Dorothy* bearing directly upon them. To add to their anxiety, the wind had now freshened to a gale; no time was, however, lost, and the perilous transfer of crew and passengers was scarcely completed when, with a loud explosion, their ill-starred ship became a mass of flames. Their reception on board the *Sarah Dorothy* was most cordial; but this vessel's supply of water and provisions necessarily throwing all hands on short allowance, the *Atrato's* timely aid was hailed by all with general satisfaction.—*Shipping Gazette.*

TO CORRESPONDENTS.

We have the packet from Adelaide, full of valuable materials for navigation.





CHART

wing the localities in which collisions have occurred
in the
ENGLISH & St GEORGE'S CHANNELS
in the years 1852-3-4-5 & 6.
compiled from Parliamentary Returns.

ALSO A PROPOSED LINE OF FAIRWAY LIGHTS
with an inward & outward track
5 Miles in breadth on either side of them
FOR STEAMERS IN THE FOREIGN TRADE.

EXPLANATION

Vessels in collision with serious damage ..... ⓪
. . . . . total loss ..... ⓪
Inward track .....
Outward D° .....

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

NOVEMBER, 1857.

Fairway Lights and Danger Lighthouses.

The interesting subject of lighthouse illumination has been very ably treated by Mr. Alan Stevenson, the late Engineer to the Northern Lighthouse Board, whose work cannot be read without not only fully appreciating the great amount of successful scientific research which the subject has received from our neighbours the French, but also acknowledging at the same time how much we are indebted to Mr. Stevenson for introducing their excellent system into the lighthouses of this country. Mr. Stevenson appears to have exhausted the subject, and the work to which we have alluded will be a standard of reference so long as artificial light shall be derived from its present sources. Indeed the methods now in use for rendering light subservient to lighthouse illumination may be regarded as nearly perfect as possible, and the demand as unreasonable which some of our navigators make for lights at the Lizard and Portland that shall be visible at a greater distance than those already there.

The expression, however, of such a desire indicates after all that something is yet required which, together with the increasing number of wrecks constantly occurring, naturally leads to the inquiry whether the science and skill which have triumphed in the design and construction of the light-giving apparatus are applied with the greatest advantage,—or, in fact, whether the lighthouses themselves, with their excellent system of lighting, are, as regards the navigation of our main channels, in their best places. Thus the whole subject of lighthouses

in reference to situation or position becomes a matter for grave consideration, and it is here proposed to advert to the most prominent features of it in the hope that a practical benefit to our shipping may result from these remarks.

The first question which naturally arises is—What is the primary or chief object of a lighthouse? There can be but one reply to this, viz.:—To make known to the shipmaster his true position,—for if he be assured of that, he is also assured of the precise distance and bearing of every danger which may beset him. Does, then, our present system of lighting meet this requirement? Certainly not, when it appears that we have no lights at the entrance of, or indeed throughout the great channels of our coasts, that can faithfully perform this duty. The use of the lead is no doubt under any circumstances most important and indispensable, especially for rectifying any error into which the state of the atmosphere or currents may lead a ship, as respects her distance from any one of the existing lighthouses. But it does not invariably give sufficient warning. If it did we should not find a lighthouse form a kind of nucleus around which wrecks cluster, as steel filings do round a magnet. The annexed wreck chart of the English and St. George's Channels, in which are marked the localities of total wrecks only which have occurred therein during the last five years, serves to illustrate this fact.

If the chief use of a lighthouse be to assure the mariner of his true position, then ought not the principal lighthouses to be placed in suitable positions of the fairway of the channel in which the ship is sailing; in order first, that she may deviate as little as possible from her course to steer for them, and having closed them may know her correct position by day or by night, and next that she may steer for her port, avoiding those dangers by which she is at present threatened? If one such lighthouse only were so placed in the fairway entrance of the English Channel, much property might be saved to the mercantile community, and much misery might be spared to the wives and children of sailors by the facility of making that light after coming from sea, instead of being wrecked while seeking a danger light.

The principles of the law, whatever the practice may be in carrying them out, are usually based upon common sense. Now what says the law in reference to the navigation of ships? Marshall on Insurance (book i., page 53) says that "it is the first duty of the Commander of a ship after the voyage has been commenced to proceed direct to the place of his destination without unnecessarily stopping at any intermediate port, or deviating from the shortest course. No such deviation will be sanctioned unless it has been occasioned by stress of weather, the want of necessary repair, avoiding enemies or pirates, succouring of ships in distress, sickness of Master or mariners, or the mutiny of the crew," and Mr. McCulloch says, "to justify a deviation the necessity must be real, inevitable, and imperious."

The law seems to be pretty clear and unmistakeable upon this point, yet instead of having lighthouses placed in suitable positions in the proper track, our lighthouses are so situated as to require a deviation from

the course. Ships entering the English Channel, for instance, are by the printed instructions required to deviate from their course in order to make lights which are *actually placed upon dangers*. Commanders of ships are recommended to make the Scilly, or Lizard, or Portland Lights, and too many, alas, in doing so, like the moth fluttering round the lamp, meet with destruction. The long list of vessels wrecked upon the westward rocks of Scilly (arising solely from mistaking the distance from St. Agnes light) has led to the building of a lighthouse on the Bishop Rock, which will perhaps greatly reduce the number of wrecks there; but still the danger lighthouse will only be placed in a better position,—for it is after all nothing but a danger lighthouse, since it leads a ship towards a danger, and no vessel keeping her proper course for the English Channel, unless she be bound to Penzance or Falmouth, *ought* to see it.

Captain Martin White places the fairway entrance to the English Channel on the parallels of 49° 15′ to 49° 25′. Therefore, under the ordinary state of the atmosphere a ship entering the channel may run more than half through it without seeing a light at all, and the Commander has the doubtful satisfaction of assuming that, as the danger lights have not been seen he may *suppose* himself in the fairway of the track. But of this he has at present no positive assurance, and should he be too much to the southward he has to avoid the dangerous indraught of the Bay of Avranches, celebrated for the wrecks on the Minquiers and its neighbouring rocks. About eighteen months ago, a large ship, the *Birmah*, from the East Indies, was placed high and dry upon the French coast to the eastward of St. Malo, when her Commander considered that he was steering his proper course up the English Channel. Were it necessary, other instances might be adduced of this indraught, the effects of which have been alluded to by the late Admiral Beechey, as well as Mons. Monnier of the French Imperial Navy. Now if a light were placed in the fairway entrance of the English Channel against which a vessel might rub her sides, the effects of this indraught might be avoided.

Under the present system the skilful navigator, confident of his reckoning, often boldly steers the channel course without incurring the risks involved in seeking the verification of a sight of lights on shore; but when celestial observations have been unobtainable even the skilful seaman does not, in the absence of a fairway light, feel justified in not complying with the *Directions*, and seeks—as well as his more cautious and less experienced brother—to make a light on the coast. Now if a light were placed in the fairway of the channel, both would benefit by it. Captain Basil Hall tells us in his entertaining *Fragments of Voyages and Travel*, that on a voyage from California (San Blas) to Rio, the first land he saw was on either side of him, upon the clearing off of fog at the entrance of Rio Harbour,—so accurately had his ship been navigated, and he speaks of it in terms of justifiable self-congratulation. Would not a like feeling be produced in the breast of the Commander of a ship, who after a long voyage arrives in the precise spot in the channel at the exact time which he has calcu-

lated, and which he may have told his passengers he should do?—and would not the desire of accomplishing this induce greater care in the use of the lead when approaching the channel, and in taking all other necessary precautions that are frequently now so much neglected?

A light exhibited eighty feet above the sea has a range of twenty and a half nautic miles across its horizon. Adding to this seven miles more for that of an observer whose eye may be ten feet above the sea will give a range of twenty-seven miles in which a fairway light may be ordinarily discovered by a ship coming home, and one which, since it is free from all dangers of the shore and all outlying reefs, a ship may seek and run for with confidence.

There is one danger, however, which of late years has been making sad havoc in our ships, and has now reached a frightful extent. In the English Channel alone during the last year there were no less than fifty-eight collisions, eight of which were attended with total loss. A commission has been sitting to amend the use of ship signal lights, with a view to lessen this evil, and it is to be hoped that some benefit will result. The collisions which are marked in the chart as having taken place during the past five years in the English and St. George's Channels alone, would appear to show that the present system of lighting the dangers only, and requiring vessels to make them, induces the chances of collisions, for a batch of them will be found off the lighthouses,—see those off the Lizard, Start, Portland, St. Catherine's, and Beachy Head. But perhaps this might have been anticipated under existing arrangements. The last wreck return published by the Board of Trade furnishes some startling facts in relation to this subject,—for it appears by a Table, No. 15 of that Report and transcribed here, that the greatest number of collisions take place in clear weather, and the least number in dark and thick weather. This appears to indicate heedlessness as one of the sources of this evil, particularly when we find that only nine cases of collision have occurred in crowded channels, and none of these have entailed a total loss.

TABLE 15.—*Wrecks and Casualties arising from Collision, distinguishing the Hour of the Day and the State of Weather when each Collision happened.* 1856.

State of the Weather.	*Between* 6 *a.m. and* 6 *p.m.*	*Between* 6 *p.m. and* 6 *a.m.*	*Total Collisions.*
Dark	—	31	31
Dark and clear	2	4	6
Very dark	—	5	5
Hazy	12	80	92
Cloudy	9	20	29
Thick and foggy	5	19	24
Clear	36	81	117
Unknown	2	10	12
Total	66	250	316

Still some stress has been laid on the vessels carrying the fairway

lights being injured by contact with ships, but without good reason. We have not yet heard of collision with the Eddystone Lighthouse, neither have we heard of any very serious damage resulting from collision to any one of our numerous lightships. Twenty-three of these lightships are placed along our Eastern coasts, off which there is an estimated traffic of 150,000 vessels a year.

If the principle of a fairway light be good, then will it also hold good if carried to its legitimate and logical conclusion. Let us try the principle by such a test:—If a light be good at the entrance of a fairway, lights ought to be good throughout the fairway. Suppose, then, lights to be placed at stated distances from each other, say at each degree, in the fairway of the English Channel (as shown in the chart), the name or longitude of each being visible upon it by day or by night, and each of which may in thick and foggy weather be made readily distinguishable by causing each lighthouse to issue sounds in accordance with its position: thus, the westernmost might fire cannon; that at 5° might issue five repetitions of the fog signal; that at 4°, four repetitions; 3°, three, and so on. It must be admitted that the navigator would be greatly benefited, having thus so many additional means of knowing his position. Such a wreck, for instance, as that of the *Tyne* would not have occurred. Here was a vessel, having a first rate Captain and crew, well manned, well found, and perhaps the strongest ship in the mercantile marine,—yet, in spite of these advantages, she was stranded, though afterwards recovered at a great expence. An error in estimating the ship's distance from a light was the principal cause of her misfortune, and was confirmed by the lead giving the same depth of water as it would have been at the supposed distance. Fatal errors similar to that of the *Tyne* have repeatedly occurred and will infallibly recur under the present system. Had the track here proposed for inward ships been in practice, the *Tyne* would not have neared a single danger, until (having struck out of the track at the proper place) she made the Needles light, at the entrance of her destined port.

Again, a line of fairway lights must tend very greatly to lessen the probabilities of collision. Ships on foreign voyages would benefit most largely by these lights; we therefore would at present limit our observations to ships of this class, though we cannot omit to notice the advantage which vessels in the coasting trade must derive from so many large ships being withdrawn entirely from their track.

Since steamers are considered to have always a fair wind, why should not all those outward bound keep to a track, say five miles in breadth, to the northward of this line of fairway lights, and all those homeward bound might keep in a similar track to the southward of it, as shown by the shaded lines on the chart. Sailing ships, whether inward or outward bound, with a fair wind, might do the same; and those ships which may be beating either up or down channel would then know the tracks of the inward or the outward bound, and would when crossing them be on the look-out accordingly. Such an arrangement would go far to remove one of the most fertile causes of collision, and the habit of using such tracks would contribute to render

the "the rule of the road" a practical reality to the sailor, instead of its being a rule that he may or may never be called upon to use, and thus at least the chances of collision may be greatly reduced.

No doubt collisions and wrecks will happen even though fairway lights be placed, but their number will be greatly lessened; and when the poor sailors may be cast upon the waters, either from loss of their ship by collision or by foundering, then will they find a haven of refuge in mid-channel at each degree,—for wherever a boat can live, the floating lighthouses will prove to be accessible. There is practical truth in such havens of refuge, for very many sailors owe their lives under similar circumstances to the light ships placed by the Trinity House to mark the shoals off our East coasts. The saving of the lives of shipwrecked men is in itself of great importance, and it is a sad blot upon our maritime arrangements, that upwards of 4,000 of such lives should have been lost during the past five years.

Should there be a reasonable apprehension of any of these fairway lights—which we would propose should be all fixed and bright—being mistaken for danger lights, then let the character of the latter be changed and let all the danger lights be made revolving,—this will entail a change in only four out of the nine principal coast lights on the English side of the channel. When the system of lighting the fairways of our channels shall be adopted, then will the present danger lights become what they ought to be—secondary lights to the main navigation for the ports and harbours of our coasts. This arrangement would simplify and render intelligible the system of lighting which appears now to be an anomaly, as the following prefatory observation to the rules for selecting the sites for lighthouses shows:—"The considerations which enter into the choice of the position and character of the lights on a line of coast, are either on the one hand so simple and self-evident as scarcely to admit of being stated in a general form without becoming mere truisms, or are, on the other hand, so very numerous and often so complicated as scarcely to be susceptible of compression into any general laws."

On the chart herewith will be seen marked numerous wrecks around the lighthouse on the Tuskar Rock—which danger is now made the point of arrival and departure for vessels bound to or from the St. George's Channel—and many will also be found off the lighthouse on the South Stack. Were fairway lights placed throughout this channel, having an inward and outward track on the eastern and western side of them, they would prove of incalculable benefit to the trade of Liverpool and Glasgow. The cost of carrying this into effect would scarcely exceed one-half of that which the Liverpool Dock Trustees have recently expended upon the new landing stage in the Mersey.

The reader might perhaps ask, of what use is this proposition for fairway lights? for how are lighthouses exhibiting lights of the first order to be placed in the deep water of our channels? In our volume for 1856 the great advantage derivable from the adoption of Mr. Herbert's floating lighthouses was pointed out and a description given of their construction, and there is no reason to modify the

views we there expressed. The perpetual occurrence of wrecks seems to suggest that our system of lighting *must be improved.* Yet the system as far as it goes is admitted to be perfect. How then can the subject be advanced, with the view of preventing this constant and painful loss, otherwise than by adopting a plan of lighting the fairways of our channels, and thus keeping our vessels from the dangers of those coasts which at present they ought to approach, and pointing out to them from those fairways the places at which they may safely leave them for their destined port. By means of Mr. Herbert's principle, assuming that his lighthouse would always retain its position, *which there is no reason to doubt,* the whole of the English Channel might be efficiently lighted in a very short time, and that, too, at a small cost.

Mr. Herbert's proposition for making the westernmost of these fairway lighthouses a depôt for fresh water, provisions, &c., for the aid of vessels in distress, and connecting it with the coast of Cornwall by a sub-marine electric telegraph wire, and thence to London and the maritime states of Europe, and also to give from the lighthouse a Greenwich time signal, is a grand and useful idea, and in the practical development of which we believe no mechanical or engineering difficulties exist.

Our space does not permit us to say more at present, but we have further observations to offer upon this very important subject.

On the Changes in the Deviations of Ships' Compasses,—*arising from a Change of Geographic Position.—By a Master R.N.*

The communication from Capt. Key, of H.M.S. *Sanspareil,* given in the last number of the *Nautical Magazine,* relative to the changes in the Deviation of the standard compass of that ship on her passage from England to the Cape of Good Hope, will interest seamen, as unmistakeably pointing out the changes that are likely to be experienced in the magnetic condition of a ship when passing from the Northern to the Southern hemisphere, and the opposite; and the necessity of repeated observations to detect the accumulating and *apparently* anomalous and capricious changes.

It may be interesting to Capt. Key, and perhaps many members of the nautical profession, to learn what has been done towards elucidating the theory of this interesting subject; and as it is also becoming a matter of more extended inquiry, the following notes are drawn up to direct attention to those eminent scientific authorities whose researches have added largely to our knowledge of the laws of ships' magnetism, as also to endeavour by a brief and popular sketch of their views to illustrate the prominent features of the theory as understood at the present time.

As far back as 1838, Mr. G. B. Airy, the Astronomer Royal, by the desire of the Board of Admiralty, conducted a series of experiments on board an iron vessel with a view to discover the laws of magnetic disturbance. The results, accompanied with elaborate investigations, are published in the *Philosophical Transactions* for 1839, and a popular account of the same experiments, and deductions therefrom, were afterwards given by Mr. Airy in the *United Service Journal* for 1840, and also published by Mr. Weale of Holborn in the same year, with practical rules added for neutralizing the ship's disturbing force by the introduction of new and antagonistic disturbing forces in the shape of bar magnets and masses of soft iron.

Mr. Airy resumed the subject in later years, as additional records of observations in various parts of the world came under his notice, and a highly instructive (though in parts necessarily abstruse) paper was communicated to the Royal Society in 1855, and published in their *Transactions* for that year.

In 1851, the Hydrographic Office of the Admiralty published the first, and in 1855 the second edition of a pamphlet, as a Supplement to the Admiralty practical Rules for ascertaining the Deviation of the Compass caused by the Ship's Iron.* This useful and interesting Supplement is furnished to all, or nearly so, of her Majesty's ships, and it is presumed can be readily mastered in its *practical bearings* by the ordinary navigator with a few hours' careful attention. The maritime profession is indebted to Mr. Archibald Smith, M.A., of Lincoln's Inn, F.R.S. and late Fellow of Trinity College, Cambridge, a mathematician of eminence, and well versed in magnetic science, for this contribution to navigation.

A very peculiar feature results from the researches of the two able expositors of the laws of ships' magnetism just named: although agreeing in the main theoretical facts as to the nature of magnetic disturbances in ships, yet they widely differ in the practical application of remedial measures: the Astronomer Royal is strongly in favour of correcting the deviation of the compass by opposing forces of magnets and soft iron; Mr. A. Smith considers such corrections dangerous,—except within certain limits, such as coasting navigation,—and prefers a superior compass, to be considered a standard, fixed in an elevated position, convenient for careful bearings, as far removed as possible from the disturbing influence of iron, and using the binnacle compass merely as a guide to the man at the wheel.

The Royal Navy, as recommended by a scientific committee several years since, follows the latter plan, or that of no compensation. The Mercantile Marine adopts perhaps more generally the former, and this has led to the introduction of various patented compensating plans, differing widely from the Astronomer Royal's views, based often it is to be feared on no theory whatever, ending frequently in failure, and thus

* The last reprint of the Admiralty "Practical Rules," is dated 1856; its unpretending price, 6d., places it within the reach of all ranks of seamen.

weakening the confidence of the seaman in the compass, and leading him to consider that the magnetism of an iron ship is so capricious as to be beyond all laws and all remedy.

Proceeding now to a brief consideration of the theory:—The errors of the compass on board ship arise from two distinct sources of magnetism; the one transient, induced in the soft iron of the vessel; the other permanent, originating in the rolled and hammered iron (differing from the condition of soft iron) employed in the construction of the hull and machinery.

Induced magnetism is due, (1,) to the magnetic action of the earth, whereby every particle of "soft iron" is converted into a magnet, whose direction is parallel to that of the dipping needle, and which magnetic power it loses on removal from that influence; and (2) when exposed to the influence of any magnetic body, which induced magnetism it loses when the influencing body is removed.

By permanent magnetism is understood the property of attraction and repulsion, belonging to a mass of hard magnetized iron, whatever may be its position; thus differing from induced magnetism, which, as stated (1), only acts in the line of the dip. "Hard iron" does not under ordinary circumstances become magnetic by induction, but when magnetized, it retains the magnetic power even after the influencing body is removed, thus also differing from the induced magnetism of "soft iron," (2,) which vanishes directly the influencing body is removed.

We have now to consider the action of induced and permanent magnetism separately on the compass-needle, that can be illustrated by using iron bars of either quality. Employing a hard iron bar magnetized, and placing it in a direct line North or South of the compass-needle, with that end which attracts the north end of the needle being placed nearest the centre of the needle, it will be found to produce no deviation; when due East of the needle (as disturbed) it will cause a maximum Easterly, and when West, a maximum Westerly deviation.

The effect of a bar of soft iron on the compass-needle is more complicated, depending (1) on the direction and amount of the dip at the place of observation; (2) or whether it is placed in a vertical or horizontal direction. In North magnetic latitudes, if placed in a vertical position, the upper end attracts and the lower end repels the North point of the needle; in South magnetic latitudes the reverse occurs: on the magnetic equator where the dipping-needle assumes a horizontal position, the vertical bar of soft iron will cease to be magnetic. The effect on the compass arising from this vertical portion of the earth's induction on soft iron, is so far the same as that arising from the permanent magnetism of hard iron, as to attract the North end of the needle as the ship swings round; but with a varying amount of attractive power proportional to the tangent of the dip, which latter magnetic element, as is generally familiar to seamen, rapidly alters in passing from North to South, or *vice versâ*, over the globe. (In the present year the dip at Greenwich is 68° 20′

N., and at the Cape of Good Hope, 54° 15′ S.; or the tangents are in the proportion of 2·6 to −1·3, or as 2 to −1.) Whereas the attractive force of the permanent magnetic bar varies in an inverse proportion to the horizontal magnetic intensity, and therefore diminishes between England and the Cape of Good Hope in the proportion of 20 to 16.* This part of the deviation arising from the combined effects of permanently magnetic iron and of magnetism induced in soft iron by the vertical part of the earth's force, is termed by Mr. Airy "polar-magnet-deviation."

A horizontal bar of soft iron placed at the same level as the compass-needle and in the same fore and aft line, produces a deviation as the ship swings round which has been termed by Mr. Airy "quadrantal" from changing its character in each quadrant of the compass: thus, an Easterly deviation occurs when the ship's head is between North and East; Westerly when between East and South; Easterly deviation again between South and West, and Westerly with the ship's head in the remaining quadrant: the maximum amounts of deviation being at N.E., S.E., S.W., and N.W., and the points of no deviation at North, South, East, and West. The reason of this action is readily explained. When the bar is at right angles to the magnetic meridian, or in a direction East and West to the line of the keel when North and south, it ceases to be magnetic; in any other position its South end attracts the North end of the needle and its North end repels it. But if the bar be placed in the line of the keel with the ship's head North and South, though it attracts the needle it does so in the direction in which it points, and therefore produces no deviation: the chief action is therefore on the intermediate points.

It is especially worthy of remark that the quadrantal deviation of a ship resulting from the combined action of the fore and aft horizontal portion of the soft iron is independent of locality, remaining the same in all magnetic latitudes.

Having now briefly sketched the characteristic qualities of permanent and induced magnetism it is necessary to consider their combined action:—if the magnetism of a ship was due entirely to the action of "soft" iron and "hard" iron, it would be possible by observations made in any two magnetic latitudes to determine the values of their parts separately; or theoretically from observations in the one geographic position to deduce the values in any other as their laws of change have been fully investigated. But it will readily be conceived that a large portion of the iron entering into the composition of a vessel must vary in its nature between the extremes of "hard" and "soft"—the magnetism of this iron in an intermediate state has been named "subpermanent," or "retentive," and it is from the combination of the permanent and induced being apparently so inextricably mixed

* The Astronomer Royal gives for the horizontal intensity at Plymouth 3·82, and for the Cape of Good Hope 4·46,—in English units of measure. The values adopted by Gauss in his *Atlas des Erdmagnestimus* are respectively 510 and 625 in French units, agreeing with the foregoing as being nearly in the ratio of 1·65 to 2·00.

up that to determine the value of the two portions separately by theory appears impossible.

It appears also from the labours of the late Dr. Scoresby, that the conditions of subpermanent magnetic iron are liable to change from blows or straining of the vessel; and Gen. Sabine has pointed out in his valuable contributions to Terrestrial Magnetism, No. IX., (see *Phil. Trans.* for 1849,) that the changes of magnetism corresponding to changes of the ship's place are gradual rather than instantaneous, or in other words that this portion of the magnetism depends not only on the place where the ship is, but where she has been for some preceding days or weeks.

Bearing the foregoing laws and facts in view, it will be understood how the deviations of the compass vary in character in different vessels on changes of geographic position:—In wood built vessels, and especially sailing ships, where soft iron predominates, the changes are due to induced magnetism, hence the deviations diminish as the magnetic equator is approached, and change their direction on passing into a South magnetic latitude.

In iron built vessels where permanent and subpermanent magnetism predominates, the changes of deviation are less regular, and the deviations may retain the same direction in both hemispheres.

An instructive process to analyse numerically the various portions of a ship's magnetism due to the laws as before explained, has been given by Mr. Archibald Smith in the Supplement to the "Practical Rules" already alluded to, by which we are enabled generally to account for any peculiarities in the deviations of the compass of particular ships, and also serving theoretically to assist in the selection of a desirable position for the standard compass;—a brief account of the method may draw attention to this portion of Mr. Smith's labours.

A deviation table having been formed by any of the processes now so generally understood, either on the thirty-two points of the compass, the sixteen intermediate, or the eight principal points—the values of five separate coefficients are deduced therefrom by the aid of mathematical formulæ, which latter have been much simplified in practice by neat tabular arrangements, appended blank forms, and with clear examples.

The five coefficients are distinguished by the letters A, B, C, D, E, and are considered each to represent a particular portion of the ship's magnetism.

D and E are termed the "permanent coefficients" as they are presumed to preserve their values unchanged in all parts of the globe.

B and C are coefficients which change on a change of geographic position, especially of latitude, and it is considered in a way generally impossible to be predicted, and as also to change from extraneous causes.

A few lines will serve to describe these coefficients in detail:—A includes any correction which may be due to index error of the standard or the shore compass employed in observing the deviations, or to

the lubber-line of the former not being exactly fore and aft: whatever portion is due to magnetism arises from a peculiar non-symmetrical arrangement of soft iron in the immediate vicinity of the compass only likely to occur in small vessels. This coefficient is in general small: + sign denotes the Easterly deviation is in excess; — sign the Westerly in excess.

D and E are due to the "quadrantal" effects of the horizontal parts of the soft iron:—the values of D are from that portion acting in the fore and aft or athwartship lines; + sign due to masses before or abaft the compass; — sign to masses on starboard or port side:—the values of E are from masses of soft iron in the intermediate angles.

D has in general a positive value, and is large in amount, varying from 2° to 5° in most iron vessels. E is in general very small.

B and C, the changing and generally the largest coefficients, are due to the combined effects of the permanent magnetism of the hard iron, and that induced by the vertical part of the earth's force in the soft iron, of which the separate laws of change have been already described:—B represents that part of the combined attraction acting in a fore and aft direction, + if before the compass; — if abaft it. C that portion acting in an athwartship direction, + if to starboard, — if to port.

Computing these coefficients from the *Sanspareil's* deviation tables observed in England and at the Cape of Good Hope, with the funnel down, we have the following results:—

	A	B	C	D	E	Dip.	Nat. Tang.	Hor. Force
Plymouth ..	+0° 4′,	+23° 43′,	+1° 45′,	+0° 58′,	—0° 13′.	68° 40′+,	2·60.	2·04
C.ofGood H.	—0 37,	+ 3 41,	+2 08,	+1 16,	+0 36.	54 00—,	1·38.	1·66

Here it is obvious that the permanent coefficients may be considered,—taking into account the probable small errors of observation,—to have stood the test of theory, and that the effect on the changing coefficients is due to the combined action of permanent and induced magnetism (the polar-magnet deviation of Mr. Airy). Were the deviations of the *Sanspareil's* compass due alone to the induced magnetism of the funnel and guns, the coefficient B would have differed from the amount in England +23° 43′ in the proportion of the tangent of the different dips, or as 2·6 to —1·4, giving a result of —18° 45′ instead of +3° 41′. Were they due to permanent magnetism alone, B would have differed from its amount in England in the proportion of 2·04 to 1·66, giving a result of +18° 58′ instead of +3° 41′. As the value of B deduced from the observation at the Cape, viz., +3° 41′, lies between the two values above deduced, we may infer that the polar-magnet deviation was caused in nearly equal proportions by the permanent or sub-permanent magnetism, and the induced magnetism.

The accompanying coefficients of two wooden sailing vessels, and two iron steam vessels, as computed from observations made in Eng-

land and at the Cape of Good Hope,* are instructive examples of the changes according to the theory advanced.

H.M.S. *Herald* (Surveying Ship).

	A	B	C	D	E
	° ′	° ′	° ′	° ′	° ′
Thames River, May, 1852.....	+0 5,	+2 6,	−0 7,	+0 15,	0 0
Cape of Good Hope, Nov. 1852.	−0 13,	−1 45,	0 0,	+0 9,	+0 15

H.M.S. *Mæander* (40 guns).

Sheerness, September, 1852	−0 15,	+1 10,	+0 30,	−0 15,	+0 8
Cape of Good Hope, March, 1853	−0 23,	−2 35,	−0 3,	−0 10,	+0 6

H.M.S. *Simoom* (Iron Troop Ship).

Portsmouth, September, 1852...	−0·7,	+20·07,	−7·18,	+4·33,	−0·19
Cape of Good Hope, Oct., 1853.	−1·47,	+13·06,	−2·23.	+4·13,	+0·22

H.M.S. *Vulcan*, (Iron Troop Ship).

Portsmouth, July, 1852.....	−0 13,	−8 47,	+0 43,	+3 37,	−0 44
Cape of Good Hope, Feb., 1853.	+1 8,	−16 3,	+1 19,	+4 15,	+0 51

Not the least valuable part of a knowledge of the five coefficients, is, that a Table of Deviations can be constructed from them, by which, whatever original errors of observation may have existed on few or many points of determination, they are then divided over the whole thirty-two points of the compass.

Connected with the foregoing, Gen. Sabine has drawn up "Directions for the use of a small apparatus to be employed with a ship's standard compass for the purpose of ascertaining at any time, whether at sea or in harbour, the changing part of the deviation [coefficients B and C] in the pointing of the compass occasioned by the ship's iron, or that part of the deviation which is usually different in different parts of the globe:" a second edition of these Directions was published by the Hydrographic Office of the Admiralty in 1856.

Any observations on the theory of a ship's magnetism would be incomplete without reference to Mr. Airy's method of compensating forces, based as it is entirely on the laws which have been referred to, that is,—"At any place the deviation of the compass in any ship, whether wood-built or iron-built, may be accurately represented as the effect of the combination of two forces, of which one alone would prouce a disturbance following the law of polar-magnet-deviation, and the other alone would produce a disturbance following the law of quadrantal deviation."

"Consequently, at any place the deviation of the compass may be accurately corrected by well known mechanical methods; namely, by a magnet in the athwartship direction, fixed at a distance determined by trial, for correcting the deviation when the ship's head is North or South: by a magnet in the head-and-stern direction, also at a distance

* Extracted from a paper on the Deviation of Ships' Compasses, by Archibald Smith, Esq., read before the British Association in 1853, and printed in their Report of 1854.

determined by trial, for correcting the deviation when the ship's head is East or West; and by a mass of unmagnetized iron, at the same level as the compass, in the athwartship line or in the head-and-stern line, according to circumstances, (usually in the former,) also at a distance determined by trial, for correcting the deviation when the ship's head is N.E., S.E., S.W., or N.W."

"For the same ship, the mass of unmagnetized iron, if adjusted at one port, will produce its due effect at all parts of the world, without ever requiring change or adjustment. The quadrantal deviation may thus be accurately corrected without difficulty, leaving only the polar-magnet deviation uncorrected."*

Mr. Airy's later investigations have led him to consider it desirable that the magnets should be mounted in such a manner that their distance from the compass can be delicately changed, to meet the changes of polar-magnet deviation; a reference for making the necessary alteration of position being obtained by the aid of a mast-head compass, which is presumed to be sufficiently removed from the effects of the ship's iron as to maintain within small limits of error a correct direction.

It is to be hoped that at no distant period there will be an accumulation of facts from various parts, particularly from the Southern hemisphere, sufficient to prove the accuracy of Mr. Airy's views of compensation under all conditions, and whether its delicate and important manipulations can be entrusted to all classes of navigators. On one point, however, mariners may be assured, that at present no other method of compensation has been brought to their notice that has been more elaborately worked out by high scientific and philosophical attainments, or that could equally stand the test of such profound mathematical analysis as has been brought to bear on the subject by the Astronomer Royal.

This paper, which already it is feared has been extended to an unreasonable length, cannot be concluded without referring to the labours of the Liverpool Compass Committee, who for the last two years, under the auspices of the Board of Trade, have been engaged in collecting observations, and making experiments on the conditions and distribution of magnetism in iron-built ships;—their researches amply confirm those laws explained in the foregoing pages: and the practical bearings of their extensive investigations, particularly with reference to a complicated class of errors arising from the heeling of ships, will no doubt be amply set forth in their forthcoming reports, and prove of great value to our maritime community.

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* See *Philosophical Transactions* for 1855, Art. V., Discussion of the Observed Deviations of the Compass in several Ships, Wood-built and Iron-built, &c., with a General Table for facilitating the Examination of Compass Deviations, by G. B. Airy, Esq., Astronomer Royal.

On some Recent Instances of Ships and Buildings Struck by Lightning.—*By Sir W. Snow Harris, F.R.S.*

The many communications which I have ventured on at various times relative to the most effectual means of guarding ships and buildings against the destructive agency of lightning, and which have been honoured by a place in the *Nautical Magazine*, will be found to involve certain broad general principles of electrical discharge differing essentially from those usually recognized in the application of electrical conductors to elevated structures under the form of what is usually termed a "lightning rod." As the truth or fallacy of such principles must necessarily be determined by the results of experience, and as the question is one of much importance, not only as affecting the progress of science but also the public interest, it may not be undesirable to call attention to every new instance in which the electrical discharge has fallen with explosive violence on ships and buildings, not only in certain cases in which the principles above alluded to have been carried out, but also in instances in which no such general principles have been acted on.

The means of guarding elevations on the earth's surface against the explosive violence of lightning had up to a late period been limited to the application of a small line of metal, either partially applied to the structure itself in immediate connection with it, and reaching from its highest point to the earth's surface, or otherwise placed at a short distance from it in a similar way. It was for a long time assumed that such a line of metal, commonly termed a "lightning rod" or lightning conductor, had the power of attracting to itself the matter of lightning and causing it to pass harmlessly into the earth, a notion which gave rise, as was likely it should, to much violent controversy as to the amount of security such pointed rods could ensure, as compared with the quantity of atmospheric electricity which by their supposed attraction might be drawn down upon the ship or building to which they were applied. An extensive generalization and a large induction of facts, however, served at an early period to assure me that such disputes were altogether fallacious, and based upon an assumption hypothetically false. Metallic substances are in themselves really indifferent to the electrical discharge, and are no more attractive of lightning than any other species of common matter:—that lightning in certain cases falls on metallic substances rather than other bodies arises solely from the circumstance of their offering less resistance to its progress when occupying a certain position in space. Lightning, however, does not so fall if a still less resisting path be open to it, even although that path be through worse conducting matter, in which case the electrical discharge is found to avoid as it were metallic substances and pass them by altogether:—that the only effectual security against lightning is

the application of capacious electrical conductors, not partially but generally applied, by which a ship or building is brought into that little resisting state it would assume as regards lightning as if it were metallic throughout, or as nearly as may be; in this case the electrical discharge could not enter upon any circuit of which the conducting system did not form a part, and thus by finding unlimited room of expansion in all directions in its course to the earth, to which by a law of nature it is determined, the explosive action would become transformed as it were into a comparatively quiescent or current action free from any attendant destructive force;—this is, in fact, the great general principle upon which the permanently fixed conductors I proposed so many years since to be employed in the Royal Navy is based. Let us then examine in each new case of atmospheric electrical discharge what proves to be the result of experience. It is with this view I venture to hope that the following instances will not be read without much interest.

H.M.S. *Monarch*, flag-ship of Rear-Admiral Bruce in the Pacific, encountered an extremely heavy thunderstorm at sea on the evening of the 22nd of October of the last year, 1856. The electrical discharge fell on the mainmast more especially, and expanding upon the conductors, became transmitted to the sea with perfect safety to the ship and crew. Such was the electrical state of the atmosphere that the vessel appeared covered in a blaze of electrical light. It was for some time feared that the ship was on fire. The sea was observed to boil up as it were about the ship as the discharge reached the water. In the old official records of the Royal Navy there is no instance of a ship so struck by lightning without the most disastrous consequences. H.M.S. *Repulse*, of 74 guns, for example, struck by lightning in the Bay of Rosas in April, 1810, in a similar storm, lost ten men killed in the rigging; ten more were so disabled as to be of little or no use to the service after. The mainmast was so crippled that no sail could be carried on it and the ship's services were for a time lost to the country.*

The following is a copy of the official letter transmitted by Rear-Admiral Bruce to the Lords Commissioners of the Admiralty relative to this case of the *Monarch*:—

H.M.S. Monarch, at sea, 23rd October, 1856.

Sir,—I request you will inform my Lords Commissioners of the Admiralty that last evening my flag-ship was struck by lightning in lat. 18° 23′ N., long. 105° 24′ W.

The electric fluid fell on the spindle of the lightning conductor at the main royal mast-head and, passing down the main mast, went out with a loud crash without doing harm, though the electric sparks were so numerous and vivid that it was at first supposed the ship was on fire.

* Parliamentary Papers, "Shipwrecks by Lightning," June, 1854, p. 58.

The ship is fitted with the lightning conductors of Sir Snow Harris.

I am, &c.,

H. W. BRUCE, *Rear-Admiral,*

To the Secretary of the Admiralty. *Commander-in-Chief.*

The following copy of a notice of this case from an officer in the ship was kindly transmitted to me by Admiral Sir W. Parker, late Commander-in-Chief at Plymouth, furnishes some interesting and important particulars:—

"We were struck by lightning North of Acapulco in a heavy squall on the 22nd of October. Fore and main royal masts received the shock. The conductors carried off the electric matter, which fell on us with a crash of ten thousand cymbals, attended by a strong sulphureous smell. It was late in the evening, and some of the men aloft cried out 'the fore-top-gallant mast is gone,' others, 'the main royal is on fire.' One man shinned up and with his cap rubbed the mast, which, being wet with the heavy rain, gave forth the same appearance as that of a damp lucifer match—a blue phosphorescent flickering light."

The Commander of the *Monarch* says that the sea apparently boiled up around the ship, and that to the rest of the fleet in company the *Monarch* appeared as if about to be destroyed by electrical fire.

It is important to observe in this case that although a great many hands were aloft in the midst of this atmospheric convulsion yet not one was hurt, nor was there the least damage to the vessel, so completely did the system of metallic conductors fixed in the ship disperse the electrical discharge.*

On the 14th of May last H.M.S. *Orion*, of 90 guns, on the same station, was assailed by a heavy stroke of lightning at Colon, the Atlantic terminus of the Panama Railway. The conductors, as appears by the ship's log and the report on the ship's sailing qualities, completely disposed of the discharge without damage to the ship or any one on board, although, as stated by Captain Erskine, the bunting of the vane at the mast-head was torn and burned and a portion of the vane spindle at its extremity melted. The *Orion* is reported to have encountered many furious electrical storms whilst on this station and is supposed to have been struck on other occasions, but little notice was taken of it, so completely did the conductors transmit the discharge without explosive violence.

The log of H.M.S. *Ferret* records a remarkable instance of the operation of the metallic system of electrical conductors with which that ship was furnished. It states:—

"Sierra Leone Harbour, West Coast of Africa, Saturday, 22nd

* In the case of the *Thunderer*, 74, struck by lightning in September, 1790, in the same latitudes, not only were the spars shivered, but all the watch in the main top were paralyzed, and obliged to be lowered down by ropes.—Parliamentary Papers, p. 46.

September, 1855. The ship was struck by lightning; it ran down the conductor on the mainmast, without damage to the ship."

The officer of the watch on deck at the time states that "the night was pitchy dark, occasionally illuminated by vivid flashes of lightning;" that at the time when the electrical discharge fell on the mast "the illumination was magnificent, every rope seemed a line of electrical fire." The report of the thunder was "tremendous, as if several 32-pounders had been fired close to the ear; every one at first thought that some material damage must have been done to the ship, yet after a close examination nothing of the kind was found; but for the conductors the mainmast must have been lost."

Royal Mail Steam Packet Company's Ship "Thames."—The Directors of this valuable company did me the honour to enclose to me, in September last, the following letter from Capt. Woolward, commanding this besutiful steam-ship, describing in a very especially clear and intelligent way a storm of lightning in which the ship was involved on the 23rd of June at Colon, and in the course of which the electrical discharge fell in a forked stream. One portion struck the foremast of the *Thames;* another the sea about one hundred yards distant from the ship,—an important fact. Such was the violence of the discharge that one of the conducting plates in the mast was started and bent by its terrible explosive force; still no damage ensued. Captain Woolward's letter cannot be read without great interest by every one who regards this department of practical science; and it is not a little remarkable that the locality is the same as that of the *Orion* just mentioned, and the storm not long after.

Royal Mail Steam Company's Ship Thames,
26th August, 1857.

Sir,—I beg to hand you the following account of the electric storm of the 23rd of June last.

3h. p.m.—The heavy clouds which had been hanging about the high land for many hours broke over the town and anchorage of Colon in violent rain, lightning, and thunder; wind very light.

3h. 15m. p.m.—A heavy flash, succeeded almost instantaneously by the thunder. The foremast was struck by the discharge, but being protected by conductors of double plates of copper, received no damage. The discharge passed off harmlessly but started a butt of the conductor between the spar and main decks. It must have, therefore, been a shock of the most intense kind, and which would, without the conductor, have probably destroyed the mast and done considerable other damage, to say nothing of the danger to a party of engineers at work within a few yards of the spot, between two ranges of the chain cable.

At the same instant lightning struck the sea about one hundred yards ahead of the ship, having all the appearance of the bursting of a 13-inch shell on its surface, and with a far louder explosion.

My sole object in wishing the fact of the starting of the butt of the conductor to be communicated to Sir Snow Harris is the know-

ledge that all scientific men are happy to hear of incidents bearing on their inventions, more especially when they tend to point out so completely, as I consider this does, their efficiency if not their infallibility under very trying circumstances.

I have, &c.,

To R. Reep, Esq., Secretary. ROBERT WOOLWARD.

On the 27th of June last (1857) H.M.S. *Cossack* was struck by a discharge of atmospheric electricity, but reported to have sustained no injury; the conductors effectually transmitted the discharge.

Such are the phenomena of some recent instances in which lightning has fallen on ships in which a system of capacious conductors of electricity is carried out upon the masts and hull, and the whole placed in metallic connection with the sea. Let us now see what has been the result in other cases in which no such a system existed.

United States Revenue Cutter "Taney."—This cutter got underweigh from Cockspur on the morning of Sunday, the 30th August last, under orders from the Honourable the Secretary of the Treasury. In the evening anchored off Tyre Island; through fore part of the night squally, with rain incessant, vivid lightning, and thunder. On the morning of the 31st, about 4h. 30m., cutter struck by lightning; which shivered the top-gallant mast in atoms and shattered the topmast and fore-gaff in pieces, ripped out the bolts, and, continuing down the foremast, took a large piece out of it, twenty-two feet in length, and shivered the remainder, passed down the mast into the hold, and struck all the watch on deck senseless. The decks were literally covered with the fragments of the masts.

JOHN MORGAN JONES,
First Lieutenant U.S. cutter Taney.

Brig Tweedside, of London.—This fine vessel, engaged in the African trade, was struck by lightning on the 22nd April last (1857), off Grant Bootan, West coast of Africa. The discharge shivered the main topgallant mast in atoms, knocked the chain topsail tye in pieces—portions of it were so completely fused as to be picked up about the decks like small shot of the size of a pea,—split the blocks in pieces, shivered main-mast-head, and cut the main-topmast backstays clean in two close on the dead eyes.

The most singular and interesting effects, however, of this stroke of lightning appear to have been the magnetic effects. Every compass in the ship was ruined, the magnetism of its needles totally destroyed or so deranged as to render them useless. The springs and steel parts of the chronometers were rendered so magnetic as to lead to their removal altogether. The after part of the ship itself was found so magnetic, although a wooden ship, that the compass could not be relied on, and it was with great difficulty the ship could be steered at all correctly. Amazing credit is due to Captain Pannell, who commanded the brig, for his great exertions and intelligence in bringing the ship to England by the aid of a compass obtained from an-

other vessel, but which was found on two portions of the deck aft to vary eight points at a distance of ten feet apart. It was only by judiciously selecting a point in the larboard gangway that Captain Pannell succeeded in bringing the ship home and saving a large sum to the underwriters.

Effects of Lightning on the French Ship of the Line "Le Jupiter."—*Le Jupiter* formed part of the French squadron in the Baltic during the late Russian war. At 7h. p.m. on the 13th of June, 1854, a heavy shock of lightning fell on the mainmast. A small wire rope attached to the mast, and leading into the water, entirely disappeared; portions of it were scattered in all directions. Several men were hurt and struck down about the decks, and some slight damage done to the vessel.

About the same time another flash struck a Turkish brig not far distant from *Le Jupiter*, which knocked a similar metal rope in pieces, and struck a hole through her bow near the water line.

Effects of Lightning on the Ship Helvetia.—The merchant emigrant ship *Helvetia*, from Bremen for Sydney, about lat. 11° N. and long. 23° W., was struck by lightning on the 6th of September last. The ship had a small chain conductor of the ordinary kind leading from the main royal mast-head outside of the ship. A portion of the electrical discharge, notwithstanding the presence of the conductor, passed through the ship itself, and killed one of the emigrants whilst asleep in his berth.*

We have here an instance of the insufficiency of a small line of metal to transmit as much of the electrical discharge as was requisite to avoid explosive action within the ship. From the circumstance of the berth being abreast of the conductor it was imagined that a portion of the charge passed from the conductor into the ship by an iron bolt. This, however, is not at all probable, if not impossible. It is more likely to have *passed out* by the iron bolt and killed the poor man in its course. It is to be remembered that the masts and hull of a ship are really conductors of electricity up to a certain point, and can transmit without explosion a given amount of electrical discharge; indeed, it is next to certain that in every instance of a stroke of lightning the electrical action pervades the whole mass, and that the great operation of the conductor is to transmit so large a share of it as will enable the less perfect conductors to operate with sufficient freedom;—when it can not effect this, damage must ensue.

Associating these cases with that of the *Hazard* and *Bittern*, in which the same partial application of a small conducting wire was resorted to, and in the former of which severe damage ensued.† We have important confirmations of the insecurity of small lines of

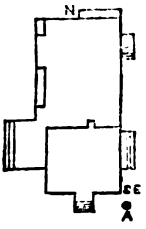
* *Shipping Gazette*, 19th October 1857, reported by the barque *David Malcolm*.

† Parliamentary Papers, 1854, "Shipwrecks by Lightning," p.p. 25 and 68.

metal partially applied as a means of guarding ships against the terrible agency of lightning.

Effects of Lightning on a House in Jamaica, called Compton Lodge, the Residence of W. Senior, Esq.—This house, situated 1,700 feet above the level of the sea, has been shattered by lightning no less than five times—three times within the last ten years (up to August, 1856), although what is called a lightning rod had been erected within ten feet of its S.E. angle, as being considered the most exposed part. The assumption, on the usual theory was, that the conductor thus applied, as in several cases of lightning rods employed for the protection of powder magazines, would attract to itself the matter of lightning, or the "electric fluid," as it is often termed, and so defend the adjacent structure.

The last mail, however, brought intelligence that the house had again been most frightfully damaged, on the 28th of July last, by a terrific explosion of lightning. The escape of the family appears to have been perfectly miraculous.



The annexed cut represents an outline of the ground plan of the house, with the position of the adjacent rod at A, and which, so far from having drawn down the electrical discharge upon itself by its supposed inherent attractive power, appears to have had no influence on the discharge whatever; so, far from protecting the S.E. angle of the building, all that portion of it suffered severely. The electrical discharge fell also on the North side of the house, at N, where no conductor was placed. It killed a horse on that side, and also fell with explosive violence on a huge cedar tree there.

Here is a truly important case clearly demonstrative of the little influence of metals on the atmospheric electrical discharge. The conductor at A does not appear to have been touched in this case.

It is of vast consequence to the progress of practical science to record and examine every new instance in which an agency such as electricity displays its power. Our confidence in any given means for parrying or meeting its terrible violence will depend not so much on abstract theoretical speculation, however ingenious, as on a copious induction of facts. The number of times that any event has occurred in a certain way, as compared with the number of times it has been observed to occur in other ways, constitutes the value of our induction; and if it can be shown that few or no instances are found in which the event has occurred but in one way only, the probability that it will continue to occur in the same way approaches nearer and nearer the limit of certainty. That the sun will rise to-morrow is, after all, only a probability of an infinite order. We can not, therefore, in our inquiries into the nature and operation of such a wonderful natural agency as lightning, be too cautious in recording and carefully examining every instance in which it displays its wondrous

power,—in piling, as it were, fact upon fact,—more especially in any practical application by which we seek to guard against its destructive effects.

If we consider for a moment the amount of destruction by lightning annually occurring, it will be found something enormous. A writer in *Nicholson's Journal of Science* estimates the loss in this country alone at £50,000 per annum, an estimate certainly beneath the true amount. If we look only at a few of the recorded cases of the last two or three years we find them of a very costly and frightful character. We find, for example, in this present year (1857), so lately as August last, a gunpowder magazine at Judpore, in the Bombay Presidency, India, struck by lightning and blown up, by which nine hundred people lost their lives. We find,—Westborough Church, Sussex, struck in May and the steeple set on fire; Walgrave Church, also, in May, severely damaged. In August last a goods shed on the South-Eastern Railway struck by lightning, which caused 350 feet of iron roof to fall in with a tremendous crash. St. Michael's Church, Stamford, struck, pinnacle of tower demolished. Tower of Windsor Castle struck in August and some tons of stone displaced. A factory chimney at Farringdon struck in March, cut open and demolished. If we look to the last year (1856), here again we find awful examples of the destructive action of lightning. Again, another magazine struck and blown up at Rhodes in November and a portion of the town laid in ruins, with frightful loss of life. A chimney at Liverpool, 310 feet high, struck in February and severely shook. The merchant schooner *Alma*, laden with gunpowder, blown up in January by lightning at Malacca. In October, 1855, a fire-work manufactory at Liverpool blown up by lightning. In short, not a year passes without abundant records of the terrible effects of the electrical discharge on ships and buildings: it cannot, therefore, but be a matter of regret that so little attention is given to the proper means of avoiding such calamities. The application of small wires to this end is clearly insufficient. A false economy appears to stand in the way of a great national question. It is a very inviting doctrine to imagine that by applying a small line of metal to a building or ship at the small cost of a few pounds we obtain immunity from one of the most tremendous powers of nature. But an agency which splits solid rocks, severs huge trees, and knocks the mast of a ship of the line, weighing eighteen tons, into pieces, is not to be dealt with after that fashion.

It is frequently stated as a reason for not employing substantial means of defence, either that the cost is too great or that the given structure has never been assailed by lightning and probably never may; the fallacy, however, of such arguments will be apparent on a very slight reflection. First as to the cost. That should be measured not abstractedly but in relation to the interests at stake and the property to be secured. Then, as to the chance of damage, the same argument may be employed in any case of fire insurance. It is

probable that all new cases of damage by lightning have arisen after escape for years—every building annually struck by lightning, with few exceptions, is struck for the first time. But it is an admitted and sound argument in the doctrine of probabilities that, "however great be the chances against any event, let it only have a sufficient number of trials or opportunities of occurring, and it is not only probable but *almost certain* that we shall meet with it sooner or later."

The Secondary Evils of the Merchant Service.—No. I.

Mr. Editor,—As I perceive that your pages are open to exposing the principal evils of the Merchant Service, perhaps they are equally so to those of a secondary character. How is it that we cannot signalize now at so great a distance as we did formerly? Shall I tell you?—Because the codes of flags now in use are so much less in size than they should be. You will ask, perhaps, how is that? Well, suppose a ship wants a new code, and perhaps the captain is sent by his owner to inquire of Mr. A. the price of one of Marryat's. Observe, now, nothing is said as to size, only the seller may ask, do you wish them to be of London or Leeds bunting? If London, the price is so and so, if Leeds, so much. Away goes the captain with this information to the owner, and perhaps Mr. A.'s price is too high. Without any inquiry as to size, he is then sent to a Mr. B. to inquire what he charges for a code? and Mr. B.'s price runs 30s. less than that of Mr. A. On learning which, the owner says, of course, captain, go and give Mr. B. the order, 30s. is 30s.

Many persons are not aware that this is a common trick among the dealers in flags, but I fear that in too many cases with a full knowledge of the fact, the *price* is more considered than the *size* of the flags, and I think you might through the *Nautical* give this fact the publicity it requires for the benefit of shipping. More attention would then be paid to this double dealing,—this system of duping, for I can call it nothing else: one of the tricks of trade, reducing the size of the flag to suit the size of the owner's pocket: thus defeating the object for which signals were originally established, and tiring to no purpose the eyes which try in vain to make them out. I have many a time vainly endeavoured to make out the flags of passing vessels, perhaps only their numbers; not with the best of glasses could I do it. Hence they are passed unknown, and hence the lack of that report to the proper parties, who might have saved themselves something handsome in the way of *sales, insurance, &c.*, if proper sized flags had been supplied. In fact, let them be the size Captain Marryat's code states it in his book, and they would be plain enough, and I'll answer for it many more reports would find their way home

than at present. This as well as many other points I think ought to fall under the inspection of Lloyd's surveyors.

One more small complaint I am reminded of by a circumstance which occurred to me some years ago at Cronstadt, St. Petersburg. I was purchasing a ship's bell at Mr. Johnston's, the ship chandler's, store, for a brig I had then of about 212 tons register. I chose one of his largest size, when an American captain present inquired the size of my ship. This I told him; on which he said, "Why I guess my ship is more than twice your tonnage, and (pointing to a bell on the floor) that's about my size." "Indeed, sir," I replied, "pray will you allow that self-preservation is the first law of nature?" "I have heard so," he said. "Then you will also allow that I have as much regard for my life as you have for your's, then why should I not have the same means of escaping out of a large ship's way in a fog as you have." "Well now, stranger," rejoined the American, "I never calculated on that before."

And so it is: you will see on board of small vessels small bells; only hear *their tinkling* sometimes in a port: out of many you may distinctly hear one or two good toned bells. You will find them on inquiry, as I have said, only on board of some large class ships; and with small vessels small numbers, as if they were only to be used in the docks, which is the only fit place for them.

PERSEUS.

A HINT TO OWNERS AND SHIP-MASTERS WHO MAY BE GOING TO MOULMEIN.

All owners sending a ship to Moulmein for timber, should send out as much good rum as will be required for the use of the crew during their stay at that place, because the rum to be had there is worse than any new rum even of the West Indies. During my stay there of three months, I know the rum affected the health of many of the crews. Some owners will perhaps reply, that their ships carry none; they are not allowed any grog, and the crew signed for none. Granted: so have I as well as many others. But what does Jack say to this, as I have heard them say many a time when I asked them, why they signed for no grog and perhaps other conditions as to the victualling. He says,—"Why, God bless you, master, a feller will sign his name to anything when he is hard up and out of a ship, without a shilling to bless himself with." Now when you are in a port mind like Moulmein, you are *hard up* then also; for the men, when you don't give them grog, will get it as well as all the others, for you will find every ship giving it. I knew of one instance of refusing it when I was there, but I don't think it will be attempted again by the same commander. Your men do not refuse going to

work, but how much work will you get from them? A very few pieces of teak will find their resting place before dark, and your mates become tired of coaxing. They, too, begin to get restive! No sailors are to be had there, and from experience I can say you will make a sorry job of it with natives. One willing European is worth half a dozen of them when working amongst teak timber. They are too much afraid of getting their feet hurt, &c., you are obliged to place them at the winches and falls.

Now Jack knows as well as you do the disadvantages you are under with them, and *at last* you are obliged to give with a bad grace what you might have done at first with a good one, besides giving much more encouragement to your crew. They remark one to another,—"Oh, he was obliged to give to us, and no thanks to him." This is your reward. But the more you can suppress angry feelings the better for all hands; and you are playing at a losing game to let "discontent" once on board at Moulmein; and the master's time will be sufficiently occupied with either a part of his crew, or perhaps officers, whilst he is there, attending Police Office, and if loading below the town will be attended with much expense. The owner should remember the old but true saying, of saving at the spigot and losing at the bung hole, and that is why I recommended him sending in the ship from England a good wholesome spirit, which will cost him about as much as a bad one at Moulmein.

SINBAD.

DECRET DISCIPLINAIRE ET PENAL POUR LA MARINE MARCHANDE.

(Concluded from page 535.)

Chapter II.—Of Infringements and their Punishment.

Section I.—Faults of Discipline.

Art. 58. The following are considered faults of discipline:—1. Disobedience. 2. Negligence on the look-out or in performing any work in the service of the ship. 3. Absence from the watch or neglect of duty during the watch. 4. Drunkenness, without disorder. 5. Quarrels or disputes, without blows, between men either belonging to the ship's company or passengers. 6. Absence from the ship without leave not exceeding three days. 7. Illegal absence on shore under three days after the expiration of leave. 8. Want of respect to superiors. 9. The act of lighting a fire (for the first time) without permission, or of carrying about a light in such parts of the ship where it is forbidden, or a lighted pipe or cigar. 10. Being asleep on the watch (for the first time) either at the helm, the look-out, or on the cat-head. 11. Lastly and generally, all acts of negli-

gence or idleness which only constitute a light fault, or simply being out of order in performing the duties of the ship, or in the obligations stipulated in the act of engagement.

These faults shall be punished by one of the penalties specified by Art. 52 at the option of the authorities named by Art. 5 of the present decree.

The infringements of the decree of January 9th, 1852, and of the regulations of the coasting fisheries, shall equally be considered faults of discipline when, by reason of their small importance, the Commissaries of Maritime Inscription do not think it necessary to refer them to the public administration. The officers shall pronounce in this case against the delinquents an imprisonment or a prohibition from fishing from one to five days.

Art. 59. Seamen who, during their term of imprisonment, either in irons or the black hole, are replaced in the duties of the ship to which they belong, shall pay, to the extent of their wages, the expences of such replacement.

Section II.—Maritime Offences.

Art. 60. Maritime offences are as follow:—1. Repeated faults of discipline. 2. Disobedience, accompanied by a positive refusal to obey. 3. Disobedience, with abuse or threats. 4. Quarrels or blows among the ship's company, when they do not amount to personal injury or cause inability to do duty for thirty days. 5. Drunkenness, with disorder. 6. Taking away a ship's boat without authority. 7. Injury to ship's furniture or stores. 8. The alteration of provisions or ship's cargo by the mixture of improper substances. 9. The embezzlement or waste of provisions or liquids for the use of the ship. 10. The clandestine shipment of fire arms, side arms, gunpowder, inflammable materials, or spirituous liquors. These articles shall be seized by the Captain, and, according to their nature and circumstances, destroyed or sequestrated in his cabin; to be, in this last case, confiscated to the profit of the chest of the Marine Invalides at the expiration of the voyage. 11. Theft committed by an officer, seaman, landsman, or apprentice, when the value of the article does not exceed ten francs, and when no burglary has been committed. 12. Desertion. 13. Assaulting a superior officer, when the injury does not cause an illness or incapacity from duty for more than thirty days. 14. Mutiny against the Captain or the officer of the watch in conjunction with any number of persons not exceeding the third of the ship's company, including officers.

These offences shall be punished with the penalties expressed in Art. 53 at the option of the judges, except in the cases provided for by the following articles.

Art. 61. Every seaman guilty of insult, by words, gestures, or threats, towards his Captain or an officer of the ship, shall be punished by imprisonment from six days to one year, to which may be added a fine of 16 to 100 francs.

Art. 62. Every officer guilty of the same offence towards his superior shall be punished by an imprisonment from one month to two years and by a fine of 50 to 300 francs.

Art. 63. Every person guilty of assaulting the Captain or an officer of the ship, shall be punished by an imprisonment of three months to three years, to which a fine of 24 to 300 francs may be added. If the assault be the cause of illness or incapacity from work for more than thirty days, the offender shall be punished conformably to the Art. 309 of the Penal Code.

Art. 64. Every mariner who shall formally refuse to obey the orders of the Captain or an officer of the ship in the execution of duty, shall be punished by six days to six months' imprisonment, besides a fine of 16 to 100 francs. Every person who shall formally refuse to obey the orders given for the safety of the ship or cargo, or for the maintenance of order, shall be punished by imprisonment from three months to five years, and a fine, from 100 to 300 francs, may also be added.

Art. 65. Seafaring men who, in a port of France, absent themselves without permission for three times twenty-four hours from their ship or post where they have been placed, or let the ship sail without going on board after having contracted an engagement, shall be considered deserters and punished by six days' imprisonment. This punishment shall be extended from fifteen days to two months in the case of landsmen or apprentices. Sea officers and sailors may also be sentenced to compulsory service on board a ship of war from six months to one year, according to Art. 55.

Art. 66. Sea officers and sailors who in a foreign roadstead or port absent themselves without leave for twice twenty-four hours from their ship or post where they are stationed, are equally considered deserters, punished by one month's imprisonment, and condemned to compulsory servitude from one to two years on board a ship of war. Landsmen, boys, or apprentices shall be condemned to an imprisonment from one to three months.

Art. 67. Every person belonging to the Maritime Inscription found serving on board of a vessel belonging to a foreign power, if he cannot show a regular permission from a French authority, or prove that his presence on board resulted from a case of extreme necessity, shall be punished conformably to the regulations of the preceding Article.

Art. 68. Officers, mariners, or sailors of the merchant marine found on board a merchant ship navigating under the flag of a power at war with France are also considered deserters, punished by two to six months' imprisonment, and retained for compulsory service on board a ship of war for three years, according to Art. 55. Boys and apprentices shall be condemned to six months' imprisonment.

Art. 69. Every deserter forfeits the pay due to him from the ship to which he belongs from the day of his offence: the half of this pay shall go to the owners; the other half to the chest of the Marine Invalids. If the deserter is in debt to the ship at the time of

his desertion, the debt shall be repaid from his earnings during his service on board the ship of war.

Art. 70. Seafaring men who are accomplices of the desertion are to be punished in the same manner as the deserter. Other persons who are equally accomplices are punished by a fine of 16 to 300 francs, and an imprisonment of ten days to three months.

Art. 71. Seafaring men who, unknown to the Captain, Master, or commanding officer, ship or unship articles the seizure of which causes fines or charges to the owners, shall be punished by one month to one year's imprisonment, independent of the fine by them incurred by reason of the seizure.

Art. 72. Every officer who, except in a case of absolute necessity, ill uses or beats a sailor or passenger, is punished by an imprisonment of six days to three months, and the punishment shall be doubled in the case of a boy or an apprentice.

Art. 73. Every officer who is habitually guilty of drunkenness, or is drunk upon his watch, shall be punished by fifteen days to one month's imprisonment, and a fine of 50 to 300 francs.

Art. 74. Every Captain, Master, or officer who voluntarily destroys, injures, or sells any article useful for the navigation or the working of the ship, shall be punished by fifteen days to three months' imprisonment.

Art. 75. Every Captain, Master, or officer shall be punished in the same manner who, except in cases of extreme necessity, has voluntarily altered the provisions, drinks, or other articles of consumption intended for the passengers or ship's company, when the same has not been mixed with injurious substances. A fine, from 16 to 300 francs, shall also be pronounced.

Art. 76. Every Captain, Master, or commanding officer who, except in cases of extreme necessity, deprives the ship's company of the full allowance of the provisions agreed upon before the departure, or, in default of agreement on the allowance, to that received by the seamen of the fleet, is held to pay, in the title of damages, 50 centimes per day, for the time of such reduction, to every person composing the crew, and may, besides, be punished by a fine of 50 to 500 francs.

Art. 77. Every Captain, Master, or officer who, by being guilty of smuggling, subjects his owners to a fine under 1,000 francs, shall be punished by three months' imprisonment. If the smuggling causes the confiscation of the ship, or of the whole or part of the cargo, or a fine above 1,000 francs, the punishment of imprisonment shall be from three months to one year, independently of the suspension from command for two to three years, without prejudice to the civil action reserved to the owners.

Art. 78. Every Captain, Master, or commanding officer who gets drunk while he is in charge of the ship is punished by imprisonment of fifteen days to one year. He also may be suspended from command for six months to two years. In case of repetition the prohibition of command may be final.

Art. 79. Every Captain, Master, or commanding officer who permits or allows on board abuses of power, or who, except in cases of absolute necessity, uses blows towards his inferior or passenger, is to be punished by six days to three months' imprisonment; a suspension from command for six months to two years may also be pronounced.

Art. 80. Every Captain who, in the presence of any danger whatsoever, abandons his ship at sea, except in cases of extreme necessity, duly stated by the officers and leading men of the crew, or who, having taken their advice, neglects to save treasure or valuables before abandonment, is to be punished by imprisonment from one month to one year. The same punishment shall also be pronounced against the Captain, Master, or commanding officer who, being forced to abandon his ship, does not remain the last on board. In either case the suspension from command can besides be pronounced from one to five years.

Art. 81. Every Captain, Master, or commanding officer who, clear from any case of danger, breaks his engagement and abandons his ship without being duly replaced, is punished, if the ship is in a port of safety, by an imprisonment of six months to two years; if the ship is in a foreign roadstead the punishment of imprisonment shall be from one to three years. In either case a suspension from command for a time may be added.

Art. 82. Every Captain or Master who agrees by his own consent to delegate the powers of command, so far as relates to the navigation of the ship, and consents thus to be merely the bearer of despatches, shall be punished by an imprisonment of fifteen days to three months, and by a prohibition from command from one to two years. In case of repetition the prohibition from command to be final.

Art. 83. Every Captain, Master, or commanding officer who does not conform to the orders prescribed by Articles 224, 225, 226, and 227 of the Code of Commerce, shall be punished by a fine from 25 to 300 francs.

Art. 84. Every Captain, Master, or commanding officer shall be punished by a fine from 25 to 100 francs, to which may be added an imprisonment of six days to a month, who, except from legitimate motives, fails, on his arrival at or his departure from a foreign port, to go and report himself on board the French ship of war commanding in the roads.

Art. 85. Every Captain, Master, or commanding officer who refuses to obey the orders relative to the police of navigation emanating from the naval authorities, Commissaries of Maritime Inscription, Consuls, Syndics, and other maritime agents, or who insults those officers or agents, by words, gestures, or threats, in the exercise of their duties, or in consequence thereof, shall be punished by a fine of 50 to 300 francs, to which may be added an imprisonment of ten days to six months.

Art. 86. Every Captain, Master, or commanding officer who neglects to comply with the forms prescribed in the first and second

titles of the present decree shall be punished by a fine of 50 to 500 francs, to which an imprisonment of six days to one year may be added.

Art. 87. Independently of the cases of suspension from command provided for by the present decree, the Minister of Marine may, by continuation, inflict this same punishment when he judges necessary, after an inquiry, in which the Captain may be heard.

Art. 88. All sums arising from fines, reductions of pay, or reduced rations shall be applied to the benefit of the chest of the Marine Invalids.

Section III.—Of Crimes.

Art. 89. Every individual inscribed on the list of the ship's company who voluntarily and with a criminal intention founders, loses, or destroys, by any means whatsoever, the ship in which he is embarked, shall be punished with ten to twenty years' hard labour *(travaux forcés)*. If the culprit has the charge of the navigation of the ship, the maximum of the punishment shall be inflicted. If a homicide or wounds occur by the foundering, loss, or destruction of the vessel, the guilty party shall be in the first case punished with death, and in the second punished by hard labour for a time.

Art. 90. Every Captain, Master, or commanding officer who, with a fraudulent intention, turns to his profit the vessel which is entrusted to his charge shall be punished by twenty years' hard labour, without prejudice to the civil action reserved to the owner.

Art. 91. Every Captain, Master, or commanding officer who, voluntarily and with a criminal intention, steers a false course, or throws overboard or destroys without necessity the whole or part of the cargo, provisions, or effects of the ship, shall be punished by hard labour for a term.

Art. 92. Every Captain, Master, or commanding officer who, with a criminal intention, is guilty of any of the acts set forth in Art. 236 of the Code of Commerce, or sells, except in the case provided for by Art. 237 of the same code, the ship or vessel of which he has the command, or discharges cargo in contravention of Art. 248 of the same code, shall be punished by close confinement *(reclusion)*.

Art. 93. Thefts committed on board a ship by the Captain, officers, supercargo, or passengers are punished by close confinement.

Art. 94. All persons embarked, under any denomination whatsoever, are punished in the same manner, who voluntarily alter the provisions, drinks, or other articles of consumption, by the mixture of injurious substances.

Art. 95. Every act of rebellion committed by more than one-third of the ship's company is punished by close confinement. If the rebels were armed the punishment of hard labour for a term shall be pronounced. Rebels are considered armed if one or more of them are found carrying any ostensible arm. Pocket-knives in the hands of rebels are considered to be arms.

Art. 96. Every plot or attempt against the safety, liberty, or authority of the Captain, Master, or commanding officer, is punished by close confinement. The punishment of hard labour for a term shall be pronounced against any officer implicated in the plot or attempt. A plot is considered to be a resolution between two or more persons embarked on board the ship to act in concert together.

Section IV.—General Regulations.

Art. 97. The Captain, Master, or commanding officer has, over the ship's company and passengers, such authority as is necessary to the safety of the ship, the care of the cargo, and the success of the voyage.

Art. 98. The Captain, Master, or commanding officer is authorised to employ force to secure the author of a crime to prevent his doing mischief, but has no jurisdiction over the criminal, and is to proceed according to Articles 49, 50, and 51 above mentioned. The seamen of the ship's company are bound to assist the Captain by main force to insure the arrest of every offender, under pain of one month to one year's imprisonment, independently of a forfeiture of pay from one to three months.

Art. 99. In case of mutiny or revolt, the resistance of the Captain and such persons as remain faithful to him is considered an act of legitimate defence.

Art. 100. In cases provided for by the present decree public and civil action shall be limited to within five years from the time of the offence being committed.

Art. 101. All regulations contrary to those of the present decree are hereby abrogated and repealed.

Art. 102. The Minister, Secretary of State of the Marine and the Colonies, the Keeper of the Seals, and the Minister, Secretary of State of Justice are charged, every one, so far as he is concerned, with the execution of the present decree.

Done at the Palace of the Tuileries the 24th of March, 1852,

LOUIS NAPOLEON.

The Minister, Secretary of State of the Marine and the Colonies,

THEODORE DUCOS.

CORK CYLINDERS FOR BOATS.

Sir,—Revelling in the sunny atmosphere of one of the finest summers on record, the casualties of the past winter are regarded as a dream. Yet the lifebuoy of Carte reminds me that the winter is approaching fast, and there appears to be no disposition on the part of our mercantile marine generally to provide themselves with means as simple and inexpensive as they are efficient for lessening the miseries

which are certain to attend the shortened days and lengthened stormy nights of approaching that are at hand.

And what of Carte's Life Buoy? I will tell you. That which I am contemplating measures thirty inches in diameter, from outside to outside, and contains in a circle of six inches broad, twenty pounds in weight of cork slabs sliced so as to be compactly covered over with stout painted canvass. A further description is unnecessary here,—suffice it to say, that a buoy of this description has supported, on the surface of the water, three bodies after death, whose united weight could not be less than four hundred weight. I am not supposing it would support four hundred weight of sand or iron. Human bodies are semibuoyant, and it is to *humanity* my argument is applied.

Seeing that it was necessary, in order to make my harbour boat seaworthy under canvas, to have five hundred weight of ballast in her, the idea immediately suggested itself, can I by any means substitute for this iron a sufficient weight of cork in slabs? Let us try. By raising her platform two inches I stowed away in cork slabs between her timbers thirty pounds. The sailmaker was then employed to form a canvas cylinder, merely by sewing together the two edges of ordinary width (stout canvas) the length of the interior of the boat, and this was stuffed with cork shavings,—they were rove easily under the seats of the rowers,—and were properly fixed and confined along her inner bilge on both sides. In these eighteen feet long cylinders we got well rammed in two hundred pounds of cork. It was clear now that at least two hundred pounds more would be required to compensate the loss of the iron ballast, and if this could be applied outside the boat's gunwale, it would also act as a fender or prevention to her being stove in collision with anything she might be dashed against.

We therefore put along her outside, below the gunwale, two battens (which are rather an ornament than otherwise) with interstices for lashings, and firmly secured the canvas cylinders around her with two hundred pounds more of cork. When tried under canvas in a strong wind, we found her stiffer than with her iron ballast. But we had also converted her into a very respectable lifeboat; and she would have the same advantage over a boat of the same dimensions with air chambers that our friend Carte has over many of the inflated life preservers, which (from trifling accidents) let out air and take in water.

Come we now to arithmetical progression. If twenty pounds of cork supported three drowned men, two hundred pounds ought to support thirty living subjects; but it will do more!—Our best cork lifebelts attached to our lifeboats' crews, weigh only five pounds on an average. Ergo, this boat has, by the same rule, buoyancy enough for forty men; but she has only space for twenty, six of whom (the crew) would have their life preservers on. Yet her capacity for rowing, sailing, and stowage, is quite equal to what it was in her original state, with this advantage, that with her plugs out and as much water in her as the buoyancy would allow to enter, ten men stood on one side, on her gunwale, and their weight would not put it under water. Thus we find that a twenty foot ship's quarter boat, equal to a coaster's or

small collier's great boat, may, for the trifling expense of four pounds, be converted into a lifeboat. In small vessels it would carry the whole of the crew on shore. In the larger vessels it would always ensure a communication with the shore.

Again, a boat thus prepared, might be let run from the davits by Clifford's apparatus, and you have a boat afloat in any sea, which cannot sink! We put her plugs in again, and two men baled her out dry in twelve minutes.

Such is the value of our old and discarded friend CORK, discarded with too much of the discipline and maritime usages of former times. We are too fond of inflation, and while we are nursing impertinence and obstinacy in our crews before the masts, and apathy abaft, we damp their exertions in case of necessity. Unaccustomed to feel any interest in the ship, (for they only enter for the run, or at most for the voyage,) the moment the vessel and cargo are in jeopardy they trust to the shore for assistance, fly to the spirit cask, or sit with their hands in their beckets on deck! Nay, when our lifeboat has landed them, I have heard them exult that "They were clear of the crazy, leaky, old tub, &c. They would soon get a better ship." Of course we feed them, clothe them, send them on franked wherever they choose to go! and there is no doubt that a set of lubberly, unprincipled, half and half seamen, with their advance in their pockets, have been benefited by the change.

To whom then are we to look for the regeneration of our mercantile marine? The reply is obvious,—to the officers. Great good has been and more will be effected by the examinations. In them a sound theory is enforced, and what is most needed now is practical efficiency, a development of resources which may be suddenly called into action. It is this that the shipowner and underwriter should encourage.

In conclusion, allow me to repeat, that these simple and inexpensive cylinders of cork, stowed at hand in the sail-room, might in many instances save a large amount of human life, in the rapid construction of a raft, brought up and lashed to small spare spars, and assisted by the life-buoys which every ship carries, (or ought to carry,) also the necessary accompaniments of cork fenders, what results might not be obtained. But no; there, there they go, the crews of our merchant craft, trusting to along shore men for everything, and neglecting the ordinary precautions against casualty, which every ship might be expected to possess.

Is not this a libel on our profession? A *soldier* gives us the Law of Storms. Another *soldier* the best life-buoys. A *landsman* contrives for us the best life-boats; and a *lawyer*, seated at his desk, perfects for us the method of lowering them with safety and despatch! Where are your inventive faculties, Mr. Maritime John Bull? Let him at least endeavour to emulate the industry, perseverance, and philanthropy of his shoregoing countrymen.

Yours, &c.,

K. B. MARTIN,
Harbour Master, Ramsgate.

[With the view of promoting the important object of saving life, we add the following.]

PRESERVATION OF LIFE FROM SHIPWRECK.—The Committee of the Royal National Life-boat Institution would earnestly call the attention of the public to the great and extraordinary exertions which the society is now making to supply exposed points on the coast with efficient life-boats, and which will involve an expenditure of more than £3,000. They, therefore, earnestly appeal to the benevolent for assistance to enable them to continue with unabated vigour their hitherto successful exertions in the cause of humanity.

THOMAS BARING, *Chairman.*
THOMAS CHAPMAN, *Deputy Chairman.*

October 10th, 1857.

The Committee gratefully acknowledge the following additional contributions:—The Duke of Cleveland, d. £50; Adml. Lord Byron, a. £1; Sir James Musgrove, Bart., d. £10; Joseph Robinson, Esq., d. £5 5s.; R. R. Tighe, Esq., a. £1 1s.; Capt. Lempriere, a. £1 1s.

Donations and subscriptions will be thankfully received by Messrs. Willis, Percival and Co.; Coutts and Co.; Herries and Co.; by all the metropolitan and country bankers; and by Richard Lewis, Secretary, at the House of the Institution, 14, John Street, Adelphi.

SAXBY'S PATENT SPHEROGRAPH.

Sir,—The mention of my spherograph in your last number induces me to ask the favour of a little space in your next.

As regards Great Circle Sailing, the method suggested by me in your number for October, 1856, depended on the measurement of the parallactic angle of a spheric-triangle, by a thread laid over, or a line passing through the pole of each containing leg.

In computing a great circle course we use the two co-altitudes and the difference of longitude. The spheric triangle thus formed has two sides and the included angle given. Now I have worked these triangles, and so tabulated the results on a single page, that any great circle course whatever can be read off in a very few seconds; because I need only know these three things, viz.:—

The ship's latitude in
The difference of latitude } between the ship and her
The difference of longitude } intended port,

in order to see at once the corresponding great circle course.

To sail *accurately* upon such a course is impossible; because currents, a faulty helmsman, leeway, &c., will always interfere; but by my method, should a commander find himself off his track, there is no inducement for him to haul up for it, but in a few seconds he uses his

newly found position, and can change his course every hour if advsiable without any further trouble than tracing the intersection of two lines of figures in a table; nor is this table mere "inspection,"—for the formation of this table involves the use of 25,000 logarithms; but the work has been completed by me, and is ready for future ages. No calculation is now called for in any case, nor are dividers, scales, &c., required, while a form of spherograph accompanies the tables and illustrates the principle on which the whole rests, and on which all other great circle systems are founded, giving accurate distances, &c. And all questions that can possibly occur are brought within my one short method *(Hic labor, &c.)*

With respect to the correction of a lunar distance, (not yet described in the *Nautical Magazine,)* I beg to state that by means of my spherograph a lunar distance may easily be corrected to *seconds* in a space of time occupying from one to two minutes! And I am able to promise that when such improvements take place in observing as will enable a navigator to get his distance with less liability to instrumental error or deficiency, I can so add to the power of the lunar spherograph as to keep pace with rigid calculation. At present, he is a good observer who can rely on his work to within a quarter of a minute in his distance. (In deference, however, to your noble service I must explain that my experience is rather in connexion with the Merchant Service than in the Royal Navy.)

I have every hope, therefore, of being able to induce navigators to increase the number of their observations, since the working of them now occupies so little time, being entirely without the aid of logarithms. Hence safety at sea will be increased, and the anxiety of commanders will be greatly diminished.

It remains for me to notice generally, in addition, that the spherograph will greatly encourage the use of the stars at sea. For if a bright star is only seen in a fleeting patch of blue sky, its name is readily found; because, if I can only in the spherograph obtain the declination of a visible heavenly body, (an operation which only occupies a few seconds,) I can, by merely setting the day of the month to the hour of the night, read off the star's or planet's distance from the ship's meridian,—and this I consider and use as if time from noon in the spherograph, and proceed for the latitude or azimuth precisely as with the sun. I avail myself, when finding the declination of a star, of what I believe has escaped the notice of others, viz., that no two stars of the first magnitude in either hemisphere have the same declination within two, three, or four degrees, hence a rough approximate observation of a star's mere *name* is enough for my purpose. Having traced it by means of its rough elements, I proceed with usual care and accuracy in my work with it.

As I make use of the azimuth occasionally, it may be well to remark, that instead of "setting" the sun's centre by the eye and guesswork, as we ordinarily do at sea, it is proper to bring the sharp eastern or western limb to the wire of the sight-vane, and then correct for semidiameter: and if we consider that a degree upon the horizon is

nearly twice the breadth of the sun's disc, a good approximate azimuth fit for use in determining the latitude by spherograph when the horizon is obscured, (and when Becher's admirable false horizon is not on board,) may easily be obtained; but not with an ordinary azimuth compass, for such is not only liable to oscillations which cannot affect a "dumb" or "Becher's Repeating Card,"* but is subject to distraction from local causes, whereas a "Becher's" card may be rested on any substance without regard to magnetic influences, it having no magnet. I would again respectfully call the attention of the Board of Trade to the value of this instrument in iron ships, to which it is as indispensable as a chronometer.

I thus seem, sir, to have perfected a valuable test for the ordinary work of a navigator at sea, and to have afforded facilities in his work which have been hitherto overlooked; but permit me to say that we share between us the triumph to which you so kindly alluded in your last number of the *Nautical Magazine*. I am sure your readers throughout the world will appreciate with me the liberal and generous feeling which many months since in your pages encouraged my bringing forward the results of labours carried on through many years. To less keen observers than yourself (or it may be "yourselves") the half developed probabilities of success would not have been apparent. If I may be allowed to say so, your readers will herein see in the Editorial management of the *Nautical Magazine*, another proof of that discernment which has for upwards of a quarter of a century rendered this periodical so valuable and interesting a repertory of nautical events. You have, sir, on former occasions erased from my communications the expression of a similar sentiment; but I beseech you, from a due regard to my own consistency, to suffer me to perform a grateful duty in saying how much I thank you. It is pleasant to be able to justify your kind forbearance in sending you the following copies of letters testimonial.

Local Marine Board, 71, *Cornhill, London, August 20th*, 1857.

Sir,—This board, at their meeting to-day, and in the presence of Mr. Boulter J. Bell, their examiner in navigation, and Capt. J. Domett, secretary, and one of the examiners in seamanship, had much pleasure in witnessing the quickness and correctness with which, by your spherograph, you got a great circle course, and the distances on it, and ascertained the latitude at sea, the variation by amplitudes and azimuths, the time at sea, and found the true distance between the moon and the sun, or a star, for obtaining the longitude.

The board are of opinion that your tables will be found of great practical service at sea, and recommend them to the favourable consideration of nautical men.

I am, &c.,

D. DUNBAR, *Chairman*.

S. M. Saxby, Esq.

* See description in *Nautical Magazine* for January, 1855. To which card a light is now fitted, rendering it as serviceable by night as by day.—ED.

Jerusalem Coffee House, London,
4th Sept., 1857.

Dear Sir,—I have much pleasure in affording my further testimony to the value and great utility of your spherograph as the most concise and ready method of ascertaining the errors of the compass. In the *Mercantile Marine Magazine* for the month of March last, I reported upon the use of the spherograph during a voyage to Rio de Janeiro in the iron barque *Sappho*. As I was the first to try and prove it practically at sea, and being so thoroughly convinced of its correctness, I feel it a duty to recommend it to my brother shipmasters.

It helped to lighten my anxiety to find that I possessed a means of correcting my course with such facility, especially when approaching the channel. And having now had experience with it *homeward* as well as *outward*, I can with confidence say that no one who has once used the spherograph would like to be without it.

I remain, &c.,

CHAS. ROBERTSON.

S. M. Saxby, Esq.

I am also proud to acquaint you, that the Trinity Board have ordered the spherograph to be supplied to all their cruizers or yachts, as a compass corrective when engaged in their important duties along the coast.

When you can afford me space for so serious a national question, I shall presume to offer some practical suggestions as to the present defective system of nautical education.

I have, &c.,

S. M. SAXBY.

To the Editor of the *Nautical Magazine.*

A WORD ABOUT DELHI.

Delhi, the present focus of the insurrection against the English Government, may be considered in the light of the holy city of India: it is, in fact, to Hindostan what Rome is to Italy—the memorial of faded grandeur. Like her, the modern city is but the substitute of the ancient extensive one, full of historical traditions of the Indraprastha which preceded it, the centre dyed with blood where the invaders and the warriors of ancient India fought and fell.

In more modern times Delhi has become the field of battle that has decided the conquest of India. To relate the history of Delhi would be to give one of all India from the time of its earlier period, with the invasion and reign of the Mahometans, to the time when England delivered the degenerate descendants of Akbar, the Shah Jehan, and Aurungzebe from the yoke of the Mahrattas and, to their advantage, replaced it by their own government. But this is no

place for such a recital, and, keeping in mind our usual course, we would propose a brief sketch of it for our readers. We shall confine ourselves to some few essential dates which mark the periods of grandeur and decadence of this capital of the Mogul empire.

It was in 1398 that Timour or Tamerlane captured the ancient Indraprastha; when it passed the terrible ordeal of conquest, and was left by him in ruins. Two centuries later, under the government of the Schah Jehan, the city recovered from this disaster and regained its ancient splendour. This Prince rebuilt it, raising magnificent monuments—among which the Jumna mosque may be considered the principal, and surrounded it with solid fortifications, which at present form the defence of Delhi. Aurungzebe, the greatest, perhaps, of the Mogul Emperors, carried on the works of his father, and extended his capital to its present proportions. Delhi then attained the zenith of its splendour in the height of the Mogul power. With the death, however, of Aurungzebe its flourishing condition rapidly declined, and Delhi was again reduced by the Nadir-Shah; who, after having taken the city by assault, laid its unhappy people in fire and blood. At the end of the eighteenth century the Mahrattas came and revelled in their rights of victory; but the city was taken from them by the English, who at least put an end to the ages of its devastation.

The ancient capital of the Mogul empire, the town of the Shah Jehan and of Aurungzebe, bears ample evidence even now of its former splendour: the remains of palaces, mosques, mausoleums, minarets, baths, fountains, which cover an area of 2,000 or 3,000 yards, bear testimony of the splendour and magnificence which belonged to the imperial city; and in the midst of these vestiges of greatness and under their shelter, forming a singular contrast with them, now stand the modest houses of villagers and European cantonments, the humble emblems of conquest by the side of the towering edifices of the vanquished.

The modern city is recognized from a distance by the domes and minarets of the Jumna-musjid, or mosque, appearing above the granite walls by which it is surrounded. This fortification, about one and a half miles in extent, covers three sides of the town, the fourth being washed by the Jumna, one of the principal confluents which the southern slope of the Himalayas sends to the Ganges, is creneled, flanked by massive stone towers, in which are several tiers of guns, and surrounded by a deep ditch about twenty-five feet wide. Notwithstanding its antiquated construction and the progress of the art of war, this wall, preserved with care, presents a formidable obstacle in that system of defence of which it forms a part.

On passing through the vaulted fort which covers each of the entrances to Delhi, the visitor finds before him a maze of narrow streets of secondary pretensions, suffocated almost by a murky, dirty atmosphere, and darkened by the cloths which hang across them, as well as by verandahs, the galleries of which more or less project over them. This aspect accords but little with the idea suggested by a

capital city of a country in our acceptation of the word, and which leads one to expect wide, spacious, and airy streets, with abundance of light.

Delhi, in spite of its being so long in the hands of the English, and notwithstanding all their efforts, is still Asiatic and a place where European manners do not prevail, as in Bombay and especially Calcutta, as proved by those innovations, those habits, that luxury, and those modern edifices imported, so to speak, into the capital of their Indian possessions. But the importance of Delhi is displayed at least in the activity of its people, the palanquins, the elephants, the brilliant corteges of important personages incessantly moving about at the great peril of passengers, by the open packages everywhere—full of the produce of native industry, the richly carved ivory, the splendidly embroidered shawls, the white or black muslins, and the silks ornamented with arabesques embroidered in gold or silver thread, the delicate works of jewelry,—added to which is merchandize of every kind imported from England. In fact, one cannot be any time there without meeting proofs which attest its greatness in spite of the incessant ravages of time. Here is the ancient palace—half in ruins—of the Mogul Emperors,—of the last successor of the Shah Jehan, now an obscure pensioner of the East India Company. Here is the ancient hall of justice in white marble, the old citadel, seated on the left bank of the Jumna, near the Agra route, and connected by an ancient bridge with the imperial palace—that of Ali Hordan Khan, now occupied by the English resident, and above all the beautiful specimens of mosques, the finest of this class of Indian Mahometan architecture. The two principal of these are the mosque of Rushun-a-Dowlah, of enormous dimensions, situated in one of the lonely streets which cross Delhi, and the mosque of Jumna, which is approached by the Driva street, the second one in Delhi.

The mosque of Rushun-a-Dowlah stands in the Chadnie Chauk (Street of Silver), on the left, a little beyond a huge tree, through the foliage of which its glittering domes are seen. It is of moderate pretensions, but is covered with the caprices and riches of eastern art. It is surrounded by shops, installed under the massive arches, which encumber its approaches but contribute by their contrast to increase the magnificence of its ornaments. This mosque, with its yet noble appearance in spite of those marks of decay which it presents, is celebrated as being connected with one of the most fearful events of the conquest. It was from one of its minarets that Nadir-Schah gave the signal and witnessed the massacre of vanquished Delhi. Standing with his drawn sword in a menacing attitude, as if he were an angel of death, he thus gave the signal for the shedding of blood, and it is said that a hundred thousand of the inhabitants perished by the sword of the conqueror while he remained in that position, when, lowering it, the carnage was stopped.

The Djumna Musjid (Jumna mosque) is approached by the Driva street, perhaps the gayest and best constructed in Delhi. At the end of it is a series of steps which lead to the edifice, standing on a rocky

eminence about thirty feet high. This mosque, according to Jacquemont, as well as on the authority of all who have visited Delhi, is one of the most beautiful in the world; not only on account of the richness of its ornaments, but also the grandeur and elegant simplicity of its proportions. In the interior is a court about 150 yards wide, which has four entrances. On three sides of it are arcades with octagonal pavilions at the angles, and the whole of the fourth side is occupied by the mosque itself. This is a magnificent building of white marble, surmounted by three domes, also of marble with black veins. The façade is surmounted by four minarets, the highest of which are at the angles; and it is from the highest of these minarets that Delhi may be seen in one view. The palace of the Mogul, with its celebrated gardens, first presents itself; the cost of which amounted to the enormous sum of one million of money. Then beyond it is seen a mass of buildings with Neapolitan terraces; further beyond these appear the ruins of the palace, tombs, and fortresses, as far as the horizon. In this survey of the city the eye is attracted beyond the foliage of the lilacs of India and tamarind trees on the surrounding elevations by the gilded domes of a little mosque—the mosque of Roshun-a-Dowlah.

The palace of the Mogul Emperors, which we have observed from the minaret, extends along the right bank of the Jumna. It is, in fact, no more than a memorial, a remnant of the past to which every day adds another dilapidation. Nevertheless, such as it yet is, it serves to indicate the ancient magnificence of this most remarkable construction of its kind in India. Its enormous fortified wall, flanked by small cylindrical towers, surmounted by pavilions which look down upon them, the marble domes and the gilded minarets, testify the character and magnificence of the design. And yet, in the midst of this ruin, this solitude, the picture of despair which the palace presents, it is no more than the veritable type of a sovereign who was not yesterday, who will not be to-morrow, other than a richly pensioned prisoner! The gardens, which should have continued splendid specimens of the oriental kind, have not even escaped the ruin in which all that contributed to the former splendour of Delhi is involved. Their terraces are sunk, their mosques, with their stairs, are crumbling in ruin, their reservoirs are filled with rubbish, and their fountains are dry. In the midst of gardens of roses and jonquils a delicious pavilion of marble still is left where, from a chalice of elegantly carved roses, without doubt, the perfumed atar flowed in limpid jets. But the pipes have long been choked up, the fine mosaic pavement long concealed by dirt, the spider extends his airy webb between the columns and the trellice of marble, and the night bird defiles the arches inlaid with agates and the polished walls of this fairy-like habitation, where the imagination can reinstate Nour-Makal on his throne, governing from thence the palace and city of his empire, and Jehan-Ghir at his feet.

The English have marked their presence at Delhi by one monument only of any importance, which, moreover, is a good indication

of the real character of their rule, and that is the Bank. It is said to have been taken there stone by stone from Regent Street, and if elegance and richness had been sought for, it is not at all events to be found in the architectural taste of India. We will volunteer to say that it is *par excellence* the monument of the conquest: if it be of Grecian form, in spirit and style it is essentially English and bears ample evidence of the master's hand. The building is a large quadrangle about ten or twelve feet high, decorated with a peristyle formed of eight fluted Corinthian columns, supporting an attick ornamented with sculpture. Certainly Delhi ought to be surprised at this important architectural importation, but it is the tendency of the English in India to have nothing Indian,—house, palace, buildings for purposes of dwelling or religion, even gardens and parks, all must come direct from London, as well as articles of furniture; and this profound disregard of the manners and certain forms of native civilizatiou may have done its part in producing the events that are now occurring. But if in matters of taste and custom the English are always too fond of their own, it must not be forgotten, on the other hand, by way of recompense to India, that they have introduced the most important improvements which they particularly esteem. Thus, in reference to Delhi, even this place owes to them the establishment of a system of irrigation which nourishes the country and the restoration of the great aqueduct made long ago to spread the waters of the Djumna, which for many years the salubrity of the city has required.

Delhi, which by a remarkable contrast is always the city of fanaticism and Indian luxury, is now precipitated, after a succession of vicissitudes, into fresh dangers, the result of which, according to the angry spirit of certain English journals, will complete its ruin. But we hope that if success attends her arms England will follow better counsel and we doubt not that in adopting the necessary measures for the security of her dominion, she will reject all measures of revenge which would bring back the days of Nadir-Schah.

Delhi, which contains two hundred thousand inhabitants, is situated to the South-West of the Himalayas, on a low chain of mountains. It is about 500 kilometres from Calcutta; 1400 from Bombay; and 2000 from Madras: the three principal centres of English power in India.

[The above, from a little periodical published in Paris, may interest the reader at the present moment. The remarks of our neighbours across the channel may be very true as to our habits, but in respect of the occasion of the rebellion, that is pretty well known to be Mahometan. Since the foregoing was in type, intelligence that the city had fallen has been received: "the seat of the corner-stone of wisdom" is no longer the seat of rebellion.—Ed. *N. M.*]

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from page 545.)

Gulf of Bengal.

Navigation of the Gulf of Bengal.

The Gulf of Bengal is of so much importance as to require our best attention. We propose therefore to consider the routes from the Southern ports for those to the Northward, and also those from the Northward for the Southern ports, during the two monsoons; and lastly the routes from the gulf for the ports on the Western coast of India, the Persian Gulf, Red Sea, &c. D'Après de Mannevillette, Horsburgh, and Millar, being our authorities.

Routes from South to North, S.W. Monsoon.—The S.W. monsoon is the most favourable season for leaving the Southern and Western ports of the Gulf of Bengal for the Northward.

Route from the Coast of Malabar and Ceylon to Bengal: February and March.—On leaving the Malabar coast or the South coast of Ceylon for Bengal, at the end of February or beginning of March, with the wind moderate and the currents favourable, a vessel would stand along the East coast of Ceylon as far as Baticola, and then make for the coast of Orixa, so as to find it near the parallel of 19° North latitude. From thence she would follow the land as far as Point Palmyras, and afterwards take the most convenient route for the coast of Bengal.

In this route should a vessel encounter strong N.E. winds with contrary currents in the latitudes of the Basses, on the S.E. part of Ceylon, she would make to the Eastward as well as she could, giving them a good berth, for it is probable that at a certain distance from the coast she would find the wind between N.W. and S.W., and sometimes even S.E.

Routes from Ports on the Coromandel Coast to Bengal: February and March.—During the same months, a vessel leaving the Coromandel coast for Bengal, will do right to give the shore a good berth, in order to profit by those variable winds which sometimes come from the Southward; as in the vicinity of the coast Easterly winds varying to N.E. are met with, which render it very difficult to make Northing. When out at sea, if the wind permits, a vessel should steer so as to make the coast of Orixa about the parallel of 19° N.; otherwise as soon as possible she would sight the pagoda of Jaguernaut or the Black Pagoda.

Route from the Strait of Malacca to Bengal: February and March.—During these months, a vessel from the Strait of Malacca, should enter the Gulf of Bengal by passing either Northward or Southward of the Nicobar Islands, according to the wind, and she would then steer for the coast of Orixa, as already observed.

From Ceylon and the Coast of Coromandel to Bengal, from April

to the middle of September.—When the S.W. monsoon is well established, that is, from the beginning of April to the middle of September, it generally extends to the West coast of the gulf. At this season, a vessel leaving Ceylon or the coast of Coromandel for Bengal, should not stand too far out from the land; for the wind sometimes veers Westerly out at sea. Nor should she on the other hand keep too near the coast until she has passed Northward of Vizagapatam, in order to avoid the strong sea breezes from S.E., which are found at the entrance of the large bays between Madras and that port. As the current sets strongly to the N.E. at this season, it will be advisable for a vessel that is uncertain of her distance from the land to sight it in lat. 18° 30′ or 19°. From thence she may steer for Bengal, following the particular directions (given by Horsburgh) about making the land of the Hooghly during this monsoon.

Route from the Strait of Malacca to Bengal, from April to the middle of September.—In the same month, a vessel leaving the Strait of Malacca for Bengal, should take the outer passage, crossing the channel of Surat, or that of Pulo-Brasse if leaving Acheen, and that between Pulo-Way and Pulo-Malora, if from the Strait of Malacca. This latter, according to Capt. Millar, is the best she can follow from the Strait of Malacca to Acheen, and for reaching the two other channels above mentioned. She will then pass West of the Andaman and Nicobar Islands. She may then take the channel between Pulo-Way and Pulo-Rondo, when from the Strait of Malacca; or that formed by Pulo-Way and Pulo-Brasse, when from Achem. In this case she will pass the Nicobar Islands to the Eastward, and will then enter the gulf between these islands and the Little Andaman by the Ten Degrees Channel. She might also keep to the Eastward of the Andaman Islands, and take the passage between the Great Andaman and the Cocos Isles, from whence she would make the coast of Orixa near Point Palmyras, unless the wind should veer to W.S.W., and the current often the case during the height of the mon-
a vessel leaving Acheen or the Strait of Ma-
passage West of the Andaman and Nicobar

r the Coast of Coromandel to Bengal: end of N.E. Monsoons.—The route to be taken from Coromandel to Bengal, after the 15th of Sep-
month of October, is very different from those on account of the termination of the S.W. veering frequently to N.E. A vessel should coast as far nearly as the middle of the Gulf S.W. winds still there, she should steer direct on the contrary they are variable and come r N.E., she should take advantage of every to the Eastward, and when about twenty or Andaman Islands or Cape Negrais, she should make all the Northing she can. This will be out at sea rather than near the coast of Arra-

can, unless it be in October and November, when she may keep this coast.

A vessel from Pondicherry or Madras at this season, with light variable Easterly winds, may be drifted by Southerly currents to the East coast of Ceylon before she is fairly out to sea; that she must be careful to guard against. N.W. winds, favourable for going to the East coast of the gulf, will be frequently found at sea. In the beginning of the N.E. monsoon it will be necessary to keep off the coast of Orixa, to avoid the Southerly current, which is then very strong. If at this period the land is made by a vessel to the Southward of Point Palmyras, she would risk not being able to make the voyage, or at east she would be much delayed, on account of the difficulty she would have in getting to the Northward against the Southerly current, which attains its greatest strength in November and December. It is therefore more advantageous, even at the end of December, when the currents begin to be less felt, to keep out to sea in the Bay of Bengal, or nearer the Eastern coast than the West, in order to make with certainty for the bank of Saugor, or the Eastern Sea Reef. On the West coast, at this period, the currents sometimes run at the rate of three miles an hour. When it is desired to make the land North of Point Palmyras, a vessel should avail herself of the tide to double that point. She may anchor at pleasure, and need not continue under way when her boards are no longer favourable.

In the whole course of the N.E. monsoon, on leaving the coast of Coromandel for Bengal, a vessel should make for the East coast, and make her Northing along it or in the middle of the Gulf. This method indeed is generally preferred, as the Southerly currents, which often prevail at this period on the East coast, are thereby avoided. A similar proceeding may be adopted from the Bay of Bengal, in order to gain the channels of the Hooghly.

Routes from Acheen or the Strait of Malacca to Bengal.—During the N.E. monsoon, a vessel leaving Acheen or the Strait of Malacca for Bengal, should adopt that route which the wind or existing circumstances admit of. She may pass either East or West of the Nicobars, when entering the Gulf of Bengal, by one of the channels between these islands and the Little Andaman. Nevertheless, in leaving the Strait of Malacca Horsburgh thinks it is preferable to make for the island of Narcondam after having taken a departure from the South point of Junkseylon; then passing North of the Great Andaman, between it and the Cocos Islands, or through the channel formed by these latter and Preparis. The starboard tack would then be adopted for entering the Hooghly, and some boards made should the wind be variable. A vessel should always be careful to keep at a good distance from the coast of Arracan, and, indeed, from the whole of the Eastern coast of the Bay of Bengal.

During the N.E. monsoon the wind in the Gulf of Bengal is generally moderate and frequently changes to East. During this monsoon the sea is generally smooth. A vessel entering the gulf about the 1st of February, should lose no time in making to the Eastward, for the

East and S.E. winds begin about this time on the coast of Ceylon and North of the Basses. Besides this, the current sets along the coast of Coromandel, and it is therefore advantageous to keep near the land. In the strength of the monsoon, on the contrary, it will be better to keep out at sea, and work in the middle of the gulf, or on its Eastern coast. Towards the middle of September, when the pilots of Calcutta move their station from Point Palmyras to the Sand Heads, a vessel should make to the Eastward in the Bay of Bengal and gain soundings to windward of the Light-vessel. The current runs with incredible rapidity to the Westward towards the end of September and in October; and if a vessel gets to leeward, she will have great difficulty in making the Saugor Channel.

Routes from Bengal to Ports on the Coromandel Coast.—The most favourable season for making a quick passage from Bengal to the coast of Coromandel, or ports in the Southern part of the gulf, is from the middle of October to the middle of February, when the N.E. monsoon is at its height.

A vessel leaving Bengal in September for Pondicherry, Madras, or any other port on that coast, meeting light winds from S.S.W. to West, and a slight Northerly set, should keep at a little distance from the West coast of the gulf. In case of meeting Southerly winds she should keep along the West coast, and afterwards work to S.W. without leaving soundings if she can. But if she cannot make progress by this method she should stand well out to sea, and avail herself of every slant of wind. The currents, however, at this season, are very irregular, for while they are setting strongly to the N.E. near the coast, they have very little strength out at sea; and in this month, when a N.E. current prevails at sea, it is not to be always found near the coast. During this month, according to circumstances, a vessel may make the shortest passage as often by keeping near the West coast as out at sea. A vessel, however, should avoid getting so far to the Eastward as the middle of the gulf in making her passage to a port on the coast of Coromandel during September, on account of the Westerly winds which prevail there at this season.

A vessel from Bengal to any port on the Coromandel coast, between October and December, should keep off the coast, and avoid the gusts of wind met with at this season. After the middle of October N.E. winds may be found on leaving Bengal, often lasting several days; but the further South the more variable is the wind, which at a distance off the coast veers to S.W., and near it becomes East.

Whatever may be the port on the Coromandel coast to which a ship is bound after the 15th of October, the land must be made about forty miles North of it. The same applies to any port on the East coast of Ceylon, on account of the strong Southerly currents; and Palk Bay should be avoided on account of the Westerly current at its entrance. The coast is consequently dangerous with a N.E. wind.

A ship leaving Bengal in January for ports on the Coromandel coast, should keep at a mean distance from the land beyond the region of the light variable winds, and should steer direct for her port when

a little Northward of its latitude. But with the wind fresh at N.E., it will be better to shape a course North of it.

Adopting the same route in February, she should give the Orixa coast a good berth as soon as she clears the Hooghly, and should steer South in order to avoid the calms and light breezes of the land, while out at sea, and in the Eastern part of the gulf, the wind will be found fresh from N.E.

In the beginning of February, on the coast of Coromandel, S.W. winds are generally found, with currents setting Northerly. The coast must then be avoided, and only made to the Southward of the port bound for. However, if the wind continues from North or N.E., a vessel might steer for her port as soon as she is in the latitude of it, taking care from the 1st of February not to be too far North.

Ceylon.—During the N.E. monsoon, from September to March, a ship bound to Ceylon should sight the land North of her port of destination if it be on the East coast of this island. If bound for the Western or Malabar coast, she should sight the island in the latitude of the Aganis, or South of the Basses, and then steer along the South and S.W. coast of it.

Routes from Bengal to the Strait of Malacca.—Leaving Bengal for Achem or the Strait of Malacca during the N.E. monsoon, a ship should steer S.E. from September to May, passing between Cape Negrais and the Island of Preparis, or else between this island and the Cocos. From thence she should make for Pulo-Way, if bound for Acheen, and for Pulo Bouton or Prince of Wales Island if bound to the Strait of Malacca. In all cases she should be careful of the currents, setting South and S.W., which are found on the eastern side of the Bay of Bengal, when taking the channels between the northern islands of the Andaman group. A vessel West of these islands should steer West of the Great Andaman and, if the current permits, should endeavour to enter the Duncan Channel, between the Great and Little Andamans. In the opposite case, being to the eastward, a vessel should endeavour to reach the Ten Degrees Channel, between the latter island and that of Carnicobar. The passage will then be much longer, and it will be advisable as soon as clear of the Hooghly to steer as much to the eastward as possible, so as to pass North of the island of Preparis. Between this island and Junkseylon during the N.E. monsoon the current is very variable. In the beginning of the monsoon it generally sets N.W.; in March and April, South or S.W.

Route from Bengal to the Coromandel Coast.—A ship leaving Bengal in March and April for ports on the coast of Coromandel and Ceylon will have winds varying from S.S.W. to West; against which she must make all the southing she can, steering South or S.S.E. when she can do so. In the middle of the gulf at this period light winds, varying from North to West, sometimes prevail, while near the Coromandel coast the wind is S.W. To profit by the northerly breezes found during these two months a vessel should keep East of the meridian of Point Palmyras until some southing is made, and should be careful, especially towards the end of April, not to ap-

proach too near the large Andaman Island, in the event of a westerly gale coming on and making them a lee shore. But a ship would take every advantage of the changes of wind to make southing, and in crossing the gulf would get at least sixty miles to the southward of her port of destination before steering for it, and be prepared for the northerly current with the southerly winds found near the coast.

Eastern Route from the Andaman Islands.—In the same season of the year, between the Andaman Islands and the East coast of the gulf, N.W. winds are generally found; and it is on this account that many commanders of ships on leaving the coast of Bengal for Europe or ports on the West coast of India steer East of these islands, passing northward or southward of the Nicobar Islands, as most convenient. Horsburgh thinks that whenever the wind admits it will be better to pass West of the Andamans, and that towards the end of April it will be most advantageous to work to the westward of this group in order to proceed South.

Route from Ceylon.—A ship bound to Ceylon at this period should, as before mentioned, keep out to sea till she has reached the parallel of 10° N., on the meridian of Point Palmyras. She may then make for the coast, taking care to keep South of her port. If bound to the West coast of Ceylon or Malabar, when she has reached the latitude of 9° she should steer so as to near the South part of Ceylon, and should not sight the land North of the Basses. During these two months, when bound to the Malabar coast, she should keep off the West coast of Ceylon, and indeed well out at sea, so as to double Cape Comorin without difficulty.

Route from the Strait of Malacca.—A ship from Bengal bound to Acheen or the Strait of Malacca during the S.W. monsoon should take nearly the same route as during the N.E. monsoon. She should steer S.S.E., if the wind permits, until she is South of lat. 15°, steering from thence towards the Cocos Islands, when certain of her position, or, if preferred, for a landfall somewhere near the North point of the Great Andaman. A vessel not certain of her position will do better to gain the parallel of 14° S. lat. before bearing up for the Cocos Islands, in order to pass to the southward of these islands. After passing them she should hug the wind in making to the southward, in order not to approach the islands off the coast of Tenasserim, and she should also keep clear of the Andaman group. She should then, if possible, steer directly for Barren Island, visible at the distance of thirteen leagues, and, having passed it on that side which seems most advantageous, she should keep to windward if bound to Achem; but if for the Straits, it will not be necessary to keep so close a luff. Nevertheless Southing must be made in order to pass at a good distance from the Sayer Islands at the South extremity of Junkseylon, in case of S.W. winds prevailing in these parts, which does not often happen during this monsoon. From the South point of Junkseylon she should steer direct for Pulo Bouton or Prince of Wales Island.

(To be continued.)

PACIFIC PAPERS.—No. I.—ISLANDS N.W. OF THE SANDWICH GROUP.—*From the Exploring Voyage of the Schooner "Manuokawai," Capt. Paty.*

[The positions of the following islands given by bearing and distance from Honoruru, agree very well with those assigned them in sheet 6 of the Pacific Ocean of the Admiralty, considering the bearings as true.—ED.]

The schooner *Manuokawai* has visited Kauai, Nihoa or Bird Island, Necker Island, Gardner Island, Laysan Island, Liscanskey Island, and Pearl and Kerm Reef or Group. Also run over the location (according to Blunt's charts) of Polland Island, Neva Island, Bunker Island, Massachusetts Island, and passed near Philadelphia Island, without seeing the appearance of land. They either do not exist, or their location on the chart is erroneous.

NIHOA OR BIRD ISLAND—is N.W.b.W. ¾ W., 244 miles from Honolulu. This is a precipitous rock 400 feet high, one and a half miles long, and about half a mile wide; the North side is nearly perpendicular; on the South side is a small space of sandy beach, where boats may land in smooth water; although I think it seldom a boat can land there with safety. Near the beach is a small drain of fresh water. About a dozen of seal were on the beach, and birds were plentiful about the island. There is anchorage from a quarter to two miles off the South side, in from 7 to 17 fathoms of water, on sand. Plenty of sharks about the anchorage.

NECKER ISLAND.—W.b.N. ¾ N. from Honolulu, 403 miles, is also a precipitous rock, 300 feet high, one mile long and half a mile broad, with small patches of coarse grass on its surface. I could not see any landing place for boats, as the surf broke high all around it. A bank of sand and rocks made off to the South and West, I should say six or eight miles or more. I had 18 fathoms water two miles off, the island bearing N.E.

GARDNER ISLAND.—W.N.W. from Honolulu, 607 miles. This is merely inaccessible rocks, 200 feet high, extending North and South about one sixth of a mile. A bank extends off to the South and West some fifteen or twenty miles; the bottom seemed to be detached rocks, with sandy spaces between. I had 17 fathoms of water ten miles South of the island. I think fish are plentiful on this bank.

LAYSAN ISLAND.—W.b.N. ¾ N. from Honolulu, 808 miles. This is a low sand island, 25 to 30 feet high; three miles long and one and a half broad. The surface is covered with beach grass; half a dozen small palm trees were seen. It has a lagoon in the centre, one mile long and half a mile broad, of salt water, and not a hundred yards from the salt, abundance of tolerably good fresh water can be had by digging two feet, and near the lagoon was found a deposit of guano. The island is "literally" covered with birds; there is, at a low estimate, 800,000. Seal, turtle, and fish, were numerous on the beach, and might be easily taken. These animals were evidently

unaccustomed to the sight of man, as the seal and turtle would scarcely move at our approach, and the birds were so tame and plentiful, that it was difficult to travel without stepping upon them. The gulls lay enormous large eggs, of which I have a specimen. A bank of rocks and sand extends off to the North and West six or eight miles or more. Good anchorage can be found on the Western side of the island, from 4 to 20 fathoms, by selecting a sandy spot to anchor on, from half a mile to two miles from the beach. The best landing is about one third of the distance from the Northern to the Southern point of the island, where there is a very smooth sand beach.

LISCANSKEY ISLAND.—W.b.N. ¾ N. from Honolulu, 922 miles. This is a low sandy island, elevated from twenty to forty feet above the sea. It is of a triangular form, one and a quarter miles long, and the Northern part one mile wide. The surface is covered almost with green grass. There is what has been a lagoon near the Southern part of the island, in the centre of which fresh water was found by digging five feet. Birds, fish, seal, and turtle, abound here, but not so plentifully as at Laysan Island. The island is surrounded with detached rocks; and from the E.S.E. to S.W. make off as far as the eye can reach. Good anchorage will be found by getting the South point of the island bearing E. ½ S., and steering or working for it. In doing this you will pass between two large breakers, bearing North and South of each other, about three quarters of a mile apart and two miles from the land; after getting inside of the breakers, you can anchor in from 4 to 8 fathoms, on sandy spots, half to a mile and a half from the beach. Your anchors should be furnished with good buoy ropes; and, if necessary, you can anchor outside of the reef

On the island I found the remains of three casks, a spar, which had been used as a look-out staff, a few pieces of timber, and part of an old cook-house or galley, on which was carved ***Holder Borden*** and several other names.

By a statement in the ***Friend*** of November, 1844, I supposed the ***Holder Borden*** was wrecked on an island about one degree West of this, and by putting confidence in Capt. Pell's correctness as to locality, I lost three days of time in looking after it. I can safely say that Pell Island does not exist in this ocean. The forty domesticated ducks Capt. Pell speaks of, must have resumed their roving propensities, as I did not see the sign of one on the island. I have understood that Capt. Pell planted some cocoa-nuts on the island in 1844; not any sign of them exist now in 1857, nor any vegetation, except coarse grass and a small running vine. I planted a handful of white beans, and half a dozen Irish and sweet potatoes. I made the latitude of the island 26° 0′ 30″ N., and longitude by chronometer 173° 57′ W.

We sailed nearly around Pearl and Kerm Reef, and saw six small islets which appeared to be located some distance inside of the reef, in what seemed to be a large lagoon, and seemed to abound with birds, seal, and turtle. No safe anchorage outside of the reef. Centre of the reef is in lat. 27° 43′ N., and long. 175° 48′ W.

RECENT BOTTLE PAPERS.

(See Chart in our last Number.)

(Continued from p. 560.)

H.M.S. MARINER.—No. 105*b*.

Government House, Nassau, N. P. Bahamas, 16th November, 1855.

Sir,—Herewith I have the honour to enclose a paper, set adrift from H.M.S. *Mariner*, Commander Cochran, which has been sent from the island of Eleuthera to the seat of Government for transmission to England.

The particulars required are noted on the back of said paper.

I have, &c.,

A. BANNERMAN, *Governor.*

The Secretary to the Admiralty, London.

H.M.S. *Mariner:* 9th August, 1855. Lat. 26° 52′ N., long. 67° 3′ W. Current setting S. 16° W., twenty-five miles in twenty-four hours. Light variable airs.

A. THOMAS, *Master*
T. COCHRANE, *Commander.*

AUNT MARY.—No. 53*c*.

British Consulate, Tampico, October 21st, 1854.

My Lords,—I have the honour to forward to your Lordships, copy of a document taken out of a bottle which floated here, and was found at the bar of this port yesterday.

I have, &c.,

CLELAND CUMBERLEGE, *Consul.*

The Rt. Hon. the Lords Commissioners of the Admiralty.

Barque Aunt Mary, from Bombay, August 19th, 1853, towards London.

Sirs,—I have discharged this account into the sea, November 28th, 1853, in latitude North 15° 38′, and longitude West of Greenwich 31° 15′ West by chronometers and lunars both sides of the moon. The last one I discharged in latitude 5° 00′ N., longitude 25° 50′ West, November 21st. This is the eighth account, with the ship's position at each time. We have had the N.E. Trades very moderate the first six days.

Yesterday squally with rain, wind from East to N.N.W. and back to E.b.S. where it still remains with strong gale. Yesterday we were in latitude 12° 58′ N., and longitude 31° 10′ W., and I hope that who may find this will make it known to the authorities of navigation. I shall discharge one every week to London.

I am, &c.,

JOSHUA PAUL, *Master.*

[The intention of the Master of the *Aunt Mary* has been most satisfactorily carried out by this bottle,—for it has succeeded in penetrating the chain of the Carribbean Islands, and passing South of St. Domingo and Cuba has rounded Cape Catoche, and been safely landed near Tampico, being the only one that has reached that coast from a position so far to the Eastward. By the dates, it has travelled about 3,900 miles in 326 days, giving a current of 12·2 per day.]

PICKWICK.—No. 53*d*.

British Vice-Consulate, Terceira, June 2nd, 1855.

Sir,—I have the honour to state that a bottle containing the paper herewith enclosed, was found by a fishing-boat on the 26th ultimo, at a league and a half from the coast seaward, a little to the West of the village of San Matheus in this island.

The paper came into my possession on this date.

I have, &c.,

JOHN READ, *V.-Consul.*

Ralph B. Osborne, Esq., Secretary to the Admiralty.

British barque *Pickwick*, W. Graves, Commander, from Valparaiso to Liverpool, April 14th, 1855, lat. 40° 54′ N., long. 31° 24′ W.

Whoever finds this paper is requested to forward it to the Secretary of the Admiralty, with a note of the time and place where it was found.

South and S.S.W. breezes.

WM. BOLLAERT, F.R.G.S.

[This bottle was probably influenced by a N.W. wind, which has thrown it in a S.E. direction about 200 miles in 42 days, or nearly five miles per day.]

HELEN.—No. 48*b*.

Foreign Office, August 13th, 1855.

Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the Lords Commissioners of the Admiralty, a copy of a despatch from her Majesty's Minister at Copenhagen, enclosing a letter picked up in a bottle on the coast of Jutland.

I am, &c.,

WODEHOUSE.

The Secretary to the Admiralty.

Copenhagen, August 6th, 1855.

My Lord,—I have the honour to transmit herewith to your Lordship, a letter from Mr. Vice-Consul Ferrall, enclosing a paper taken from a bottle picked up on the 2nd ult. on the coast of Jutland, which appears to have been thrown into the sea in lat. 59°. long. 28° W., for the purpose of ascertaining the currents prevailing in the North Atlantic.

I have, &c.,

ANDREW BUCHANAN.

Earl of Clarendon, K.G., &c.

Copenhagen. August 3rd, 1855.

Sir,—I have the honour to enclose to your Excellency, for transmission to England, a letter which has been handed me for that purpose by the Rev. C. C. Ostergaard, P. P. of Husby and Söndernissum, on the West coast of Jutland, which was found, sealed up in a bottle, on the 2nd ultimo, at a small town on that coast called Fjand, situated one geographical mile South of Thorsminde, five or six miles from the Agger Canal.

I have, &c.,

P. I FERRALL, *B. V.-C.*

Andrew Buchanan, Esq., &c.

September 9th, 1854.

Solely with the view of determining the currents prevailing in the North Atlantic, this bottle was thrown overboard from the barque *Helen*, of Montrose, Thomas Johnston, Commander, in lat. 59° N., 28½° W. long.

Should any one find this, it is specially requested that they make a report of the fact to the nearest newspaper office, that it may add another to the too limited data existing for the determination of the bearing and flow of the currents of the North Atlantic.

On board the *Helen*, on her passage to Quebec, fourteen days out, from Montrose, Scotland.

Signed Witness our hands JAMES KERR
GEO. LESLIE.

"Delle Brev blev d 2 Jüli, 1855, fündet i Fjand Söndernissüm Sayn, paa Lyllands Vestkyst, henved 1 geographisk Mül sonden far Thorsminde eller 5—6 Mile fra Agger Canal.

OSTERGAARD,
Sogneprest for Hüsby ag Söndernissüm.

[Appears to have found its way into the North Sea, having travelled with the set from the Westward about 1,400 miles.]

NAUTICAL NOTICES.

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from p. 561.)

Name.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
34. New Mole	Gibraltar	F.			Temporary and coloured. Commenced 25th Aug. To North, Green; West, White; South, Red.
35. Sullvan Isl.	South Carolina, U. S.	F.	50		Est. 1st Sept., '57. Visible only in an arc of 15°.
35. Norris Island			50		Est. 10th Sept., '57. In line with Charleston light leads in deepest water of main ship channel.
36. Geelong *(a)*	Port Phillip, Australia	F.	27	9	Placed temporarily opposite to Bird Rock.
37. Cape St. Sebastian, Spain	41° 53·5′ N., 3°.12·4′ E. On the Cp.	R.	555	22	Est. 1st Oct., '57. Hormigas 2½′ South of light.
38. Isola Rossa, Corsica	42° 38·8′ N, 55° 7′ E. On I. da Pietra	F.	180	6	Est. 1st Oct., '57. At entrance of Port Isola Rossa.
39. Dutch Island	Rhode Isld.	F.	50	14	Est. 25th Sept., '57. The temporary light discontinued.

F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established. m. Mean level of the sea.

(a.)—The following tidal signals will be made from the light-vessel by day to indicate the depth of water on the bar:—One blue flag, 10 feet; one ball, 10½ft.; ball with blue flag over, 11ft.; ball with blue flag under, 11½ft.; two balls, 12ft.; two balls with blue flag under, 12½ft.; two balls with blue flag over, 13ft.; two balls with red flag under, 13½ft.; two balls with red flag over, 14ft.; two balls with red flag between, 14½ft.; red flag, 15ft. Variation 8° East in 1857.

New Books.

A Manual for Naval Cadets—*By John McNeill Boyd, Captain, R.N.* Longmans, 1857.

A manual of subjects belonging to the profession of the Royal Navy is valuable in proportion to the skill with which it is compiled, for of all the professions of life, it would be difficult to select one that makes a greater demand upon the arts and sciences than that of the sea. A ship at sea has been appropriately likened to a floating town, where the pursuits of different artizans are followed both for the sake of profit and amusement. Such would be the case especially with the commercial class of vessel; but when she is designed for the purposes of the State, and to contend with the foe in whatever shape he may assume, the implements and pursuits of peace and war are necessarily combined, and a vessel of this kind presents to the eye the masterpiece of man's handywork.

"She walks the waters like a thing of life."

This she did under sail when favoured or not by the wind: but, deserted by the wayward element, in the peaceful calm, under the gigantic power of steam she still can do the same! Hence a work that shall combine a glossary of the subjects with which those who are to wield this potent arm of Britain's power are expected to be acquainted, is a work of no mean pretensions.

The aim of Captain Boyd in the "Manual" before us for the Naval Cadet, is to explain that part of it which affects the construction and equipment of the ship, with her management in the performance of her various important duties under sail or steam or at anchor, and under all conditions and circumstances of weather and locality. Thus, following up the spirit of our ancestors, Captain Boyd, by successively explaining to his youthful readers the great principles affecting all these branches of his subject in their due order, commences with the composition of water and air, the former leading to displacement, this again depending on construction; the latter to the effects of heat, producing the deleterious carbonic acid gas in confined places, and the storms and hurricanes of the polar and inter-tropical regions;—following these, which of themselves open out a variety of subjects, sufficiently glanced at here, with the principles of construction, flotation, and stowage, and, as already observed, the abundant variety of subjects included under the head of equipment,—implying the means of locomotion and their most approved form for efficiency and security, along with those of offence and defence, under all conditions,—all tending to the grand design after constructing and equipping the ship, that of "handling" her to the best advantage. Here is an ample field of inquiry for the Naval Cadet, with the glimpses of philosophical science that present themselves here and there, sufficient without entering into navigation and its parent nautical astronomy; and following up those in the spirit of our ancestors, Captain Boyd has enforced their real meaning when they said most truly,

"For d'ye mind me a seaman should be every inch
All as one as a bit of his ship!"

and makes the first duty of his Cadet that of gaining a thorough knowledge of every particle of her fore and aft, and, in the true sense of the word, teaches him how to make himself at home with her.

Captain Boyd's real difficulty lay in compressing so much information required for a manual on the numerous subjects he had to deal with into the small space necessary to make a little volume, which while it shall deserve to be the companion of his reader, shall not be prevented from so being by its bulky

nature. Although here and there we might see where a useful addition could be made, in our opinion the author has performed his task with tact and judgment. His work should indeed be in the hands of the Cadet, for since the days of Darcy Lever there has been a sad deficiency in the special class of work which this little *Manual* is well designed to fill. And we will venture to predict that it will very soon obtain the circulation to which it is entitled in that important branch of England's naval officers for whom it is especially intended.

THE JOURNAL OF THE UNITED SERVICE INSTITUTION, *Whitehall Yard, —Published under the Authority of the Council. No. I.*

The fruits of that excellent establishment, the United Service Institution have long been evident to the many who would take the trouble to go there,—not only in the specimens which enrich its collection but also in the lectures which have been delivered there; and here we have something more tangible in the shape of a journal of papers, the contributions of officers of the two services. It is a production that augurs well for the future and holds out the promise of being the harbinger of many a useful volume in years to come.

The first number of the journal before us opens with an appropriate and concise address by the Chairman, the Hon. James Lindsay, followed by papers on field fortifications, and interesting notices on the Persian army, by Sir H. Rawlinson, and on those of ancient Greece, by the Rev. G. R. Gleig, China and the Chinese, by Mr. J. Crawfurd,—all particularly acceptable. Captain Fishbourne then illustrates the effect of form in ships on naval gunnery; and we next find Captain Nolloth's neat method of showing the amount of compass deviation in a collection of many examples in one diagram, similar to that in principle which appeared in our volume for 1856. An unfortunate misnomer is attached to this, which we have been requested to correct by a note from the Editor, and which, in justice to Captain Nolloth, we readily insert, that it may remove an impression concerning it which it was not his intention to convey.

U. S. Institution, Whitehall, 17th September, 1857.

Sir,—Will you allow me to correct in your magazine an error which was inadvertently made in the first or July number of the *Journal of the United Service Institution?*

The diagram furnished by Captain Nolloth, R.N., was entitled by him "Geographical Delineations of Magnetic Deviation," and not "Diagram of a Discovery with respect to Magnetism," as inserted in the *Journal.*

I am, &c.,

B. BURGESS, *Captain.*
Secretary, U. S. Institution.

To the Editor of the Nautical Magazine.

But we may congratulate Captain Nolloth on apparently having suggested to the Compass Committee of Liverpool, whose reports to the Board of Trade are just issued, the representation by diagram "West deviation blue, East deviation red, * * " "represented on the rhumb lines of a compass," as appears in the report under the title of Curves of Deviation. But although the report fails to render to Captain Nolloth what is due to him as the first to propose this method, he may with confidence refer to the publication before us and to the volume of this journal abovementioned, wherein he says,—"were the deviation of a number of vessels of different classes thus laid down in one large diagram results both interesting and useful might be obtained," p. 615,—and so the Liverpool Committee appear to think.

Loss of the Steam-Ship "Central America."

On the night of Saturday, the 12th September, in a gale of unprecedented severity, which disabled many vessels supposed to be less seaworthy than the *Central America*, that steamer went down, carrying with her between four and five hundred persons. Since the loss of the *Arctic* three years since, when many of the best connected and best known persons of America sank beneath the waters of the Newfoundland banks, there has been no marine disaster so awful or spreading such wide gloom as that which I have now to record.

The *Central America* left Havannah on the 8th of September with 491 passengers and 101 crew,—in all 592 persons. Of these, so far as we know, only 173 are saved. The weather was mild and the wind favourable when they left. Soon after they had got to sea the wind freshened, and before they had been out twenty-four hours was blowing a gale; the gale increased to a hurricane, which lash d the sea into ungovernable fury. It is not clear from the testimony at precisely what time it was discovered that the ship was making water; it would seem, however, that it was as early as the morning of the 11th. As in the case of the *Arctic*, the men in the engine department first discovered it. The captain was informed of it, and set all hands to work to remedy it, but the communication with the coal bunkers was soon cut off, the fires went out, and the vessel fell into the trough of the sea. An effort was made to reduce the amount of water. The men were formed into baling parties, and did their work manfully. When they tired even the women came forward to help the work of salvation. Steam was again got up, and an effort was made to rig the donkey engines so as to clear the hold. The effort was temporarily successful, but the engines (or the pumps) soon got out of order and ceased to work. The sea all this time was running at a fearful height and dashing against and over the helpless vessel. After in vain attempting to again get up steam,—for it was got up only to be lost again for ever,—and after it was found that the water was hopelessly gaining upon them in spite of all baling and pumping, and in spite of all efforts to stop the leak, the captain next tried to make a drag by cutting away the foremast, so as to get her head on; but in carrying out this wise expedient the mast unfortunately fell, so as to be swept under the hull, where it for some time remained, striking with great force in such a way as probably to increase the leak. By paying out enough hawser they got a drag, which brought them for a while head on; but the hawser parted before long, and left them again at the mercy of the waves. The hold was by this time well filled, and the water was in the lower cabins—warm water, heated at times by the boiler as the vessel careened over, so as to be almost unbearable.

The women and the children, driven from their own cabin, had gathered in the men's saloon. The rough California miners, who made a large part of the passengers, had gathered together their golddust, the savings of years, and bound it about them, like Tom Thurnall, in belts,—whether to share their safety if safety came, or possibly to pay their ferriage in case of need, should a worse fate overtake them, does not appear. The captain appears to have been everywhere, like a gallant officer, giving every needful order and personally superintending its execution; like a noble-hearted man, cheering the timid and especially infusing confidence into the hearts of the women.

On the afternoon of Saturday, the 12th, when hope was about departing, the brig *Marine*, of Boston, hove in sight, and, although herself disabled by the gale, came to render such assistance as she could. To the honour of human nature these rough miners stood peaceably by while the women and children were put into the boats and transferred to the *Marine*. Boat after boat left, and yet they made no effort to fill them. The captain himself stood by and

superintended the lowering of the women into the boats. It is one of the noblest examples of self-sacrifice on record—that of these rough men, unused to restraint, accustomed to selfishness, permitting the helpless women and children to be the first to pass from danger to safety.

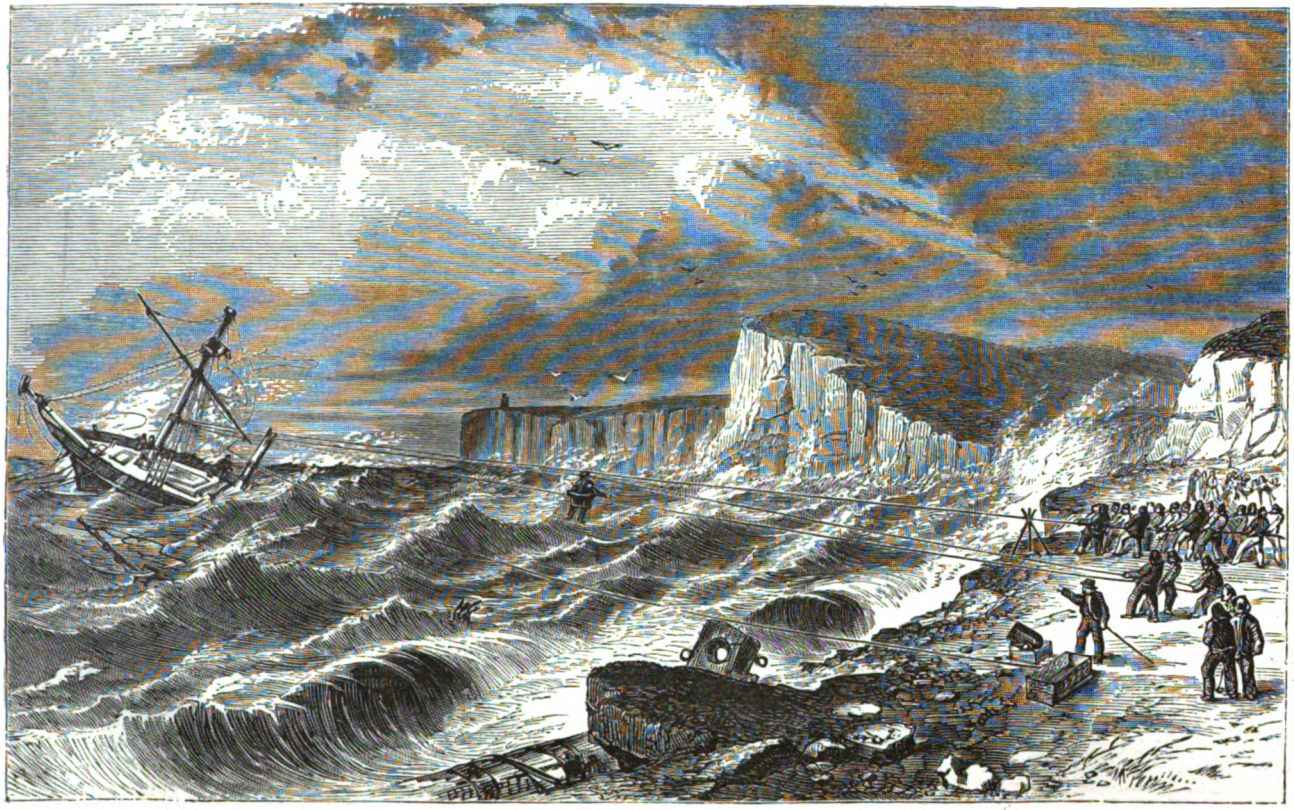
When the last boat had gone with the women, a terrific sea broke over the steamer. She gave a plunge and sank. By this time night had come on; the face of the ocean was dark except when whitened by the foam. All were sucked down in the vacuum—the captain from the wheelhouse, spyglass in hand, the passengers from the deck. When they rose again masses of the wreck rose with them, wounding and maiming many, so as to cause death. A scene ensued for those who survived surpassing all the romance of shipwreck, all the horrors with which imagination has invested it. A flash of lightning broke the veil of darkness, and revealed several hundred persons, amid masses of wreck, floating helplessly on the surface of the Atlantic, with nothing but life-preservers or some fortunate door or bench between them and eternity; each one tried to cheer the others. The charms of companionship were added to mitigate the horrors of the scene. Scarcely a published account that does not speak of some one helped or cheered on that horrid night, when they lay floating at the mercy of the waves, and tossed about by the fury of the storm. A friendly vessel picked them up in the morning one by one, slowly, those who had survived—spending hours in the search of them. The survivors were first carried to Norfolk, and the day before yesterday arrived pennyless and almost naked at this port.—*Daily News.*

MASSACRE ON BOARD THE ALBION COOPER.—Intelligence from Havana, of September 6th, communicates a frightful occurrence on board the *Albion Cooper*, Capt. Humphreys, of Portland, while on her passage from Baltimore to Cardensas, with a cargo of timber:—

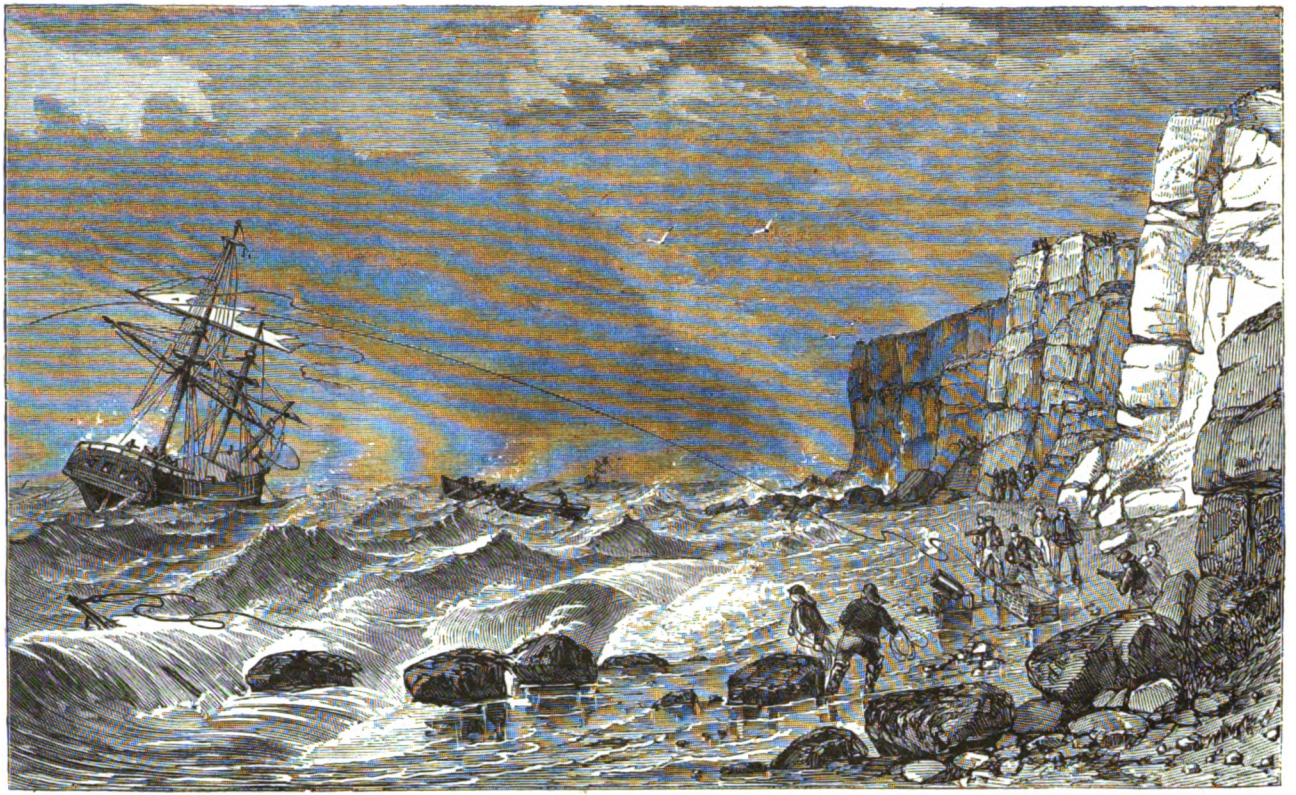
Capt. Humphreys had shipped a French seaman at Baltimore, named Victor Leclerq. On the voyage, Leclerq and John Brown, the black cook, conspired with an Irish lad, named John Dowd, to murder the captain and crew, and possess themselves of a considerable sum in gold that they knew the captain had in his possession. When near Bahama, the three mutineers being on the dog watch with the chief mate, murdered that officer. They then proceeded to the captain's cabin and killed him in his berth; they also killed three seamen, and fastened the remainder down the forecastle; and, having possessed themselves of £200 in gold, set fire to the vessel. They then pushed off for the land in the ship's cutter; the current, however, carried them on to the Bahama Reef, and they were taken off by the Spanish brig *Doloroso.*

On the passage, Dowd made a confession of the crime they had perpetrated, and the three murderers were handed over to the authorities at Havana.

LOSS OF THE RUSSIAN SHIP OF WAR "LE FORT."—This large 80 gun Russian ship, with two other smaller Russian men-of-war, on their way from Revel to Cronstadt, was, when off Logland, caught in the same storm. The vessel, though under the smallest sail, was seen to heel over suddenly, then right herself, and in less than ten minutes went down in deep water with 817 souls on board, being 750 men, fifty women, and seventeen children. Not one was saved or even seen. These vessels were bringing a number of Russian families from Revel to Cronstadt for the winter.—*Daily Papers.*



Landing the Crew in a "Sling" travelling on a Hawser.



Shot carrying a Line over a Stranded Ship.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

DECEMBER, 1857.

The Principal Evils of our Merchant Service.—No. IV.
The Décret Disciplinaire.

In taking a review of these laws by which the French merchant marine is at present governed, so interesting to all nautical men who look at all beyond the mere exigencies of the moment, the most striking feature they present is the extraordinary desire which they seem to evince on the part of the French Government to bring their merchant marine into a state of organization, so as to make it almost an integral part of the Imperial Navy. On this account no comparison can be made between their merchant marine and ours, since in the latter no connexion or amalgamation of any kind exists with the service of the State. On reading over the decree it is quite clear that the French code is wholly inapplicable to our service; but that it answers for theirs much better than our present laws do for ours, there can be no manner of doubt, as nautical men who have long resided in the mercantile ports of France can fully confirm. The crews of the French vessels which trade to this country are decidedly in a better state of discipline than ours, more habitually respectful to their officers, and more general content and cheerfulness prevails among them. They have, however, more men in proportion to their tonnage, and thus the *origin* of much of the discontent which prevails in our vessels has never existed in theirs.

Before making comparisons, or going over such articles of the decree from which our authorities may take some useful hints, it is as well to observe the very great difference which exists in the govern-

ment, constitution, and habits of the two nations. M. Ducos, in his letter to the Prince President published in the *Nautical* of July, says, that "he has been assisted in his code by the advice and experience of Admiral Duperré, and that it has been the result of twenty years' deep attention."

Now when professional men have had such a subject as this so long in their serious thoughts, there is every reason to suppose that the result will be founded upon practical knowledge; and no doubt a well selected nautical committee could have done as much for us in six months. But in England, though a more strictly maritime country, we leave these laws, of so much national importance, to be constructed by men who have never been at sea,—clever clerks or lawyers no doubt, but whose entire ignorance of the subject with which they are dealing can at once be shown by quoting one only of the many defective articles of our Merchant Shipping Act.

Let us take, for instance, Art. 230, which says that—"Every foreign going ship having one hundred persons and upwards on board shall carry on board, as part of her complement, some person duly authorized by law to practise as physician, surgeon, or apothecary, and in default the owner shall for every voyage of any such ship made without such medical practitioner, incur a penalty not exceeding one hundred pounds; provided that nothing herein contained shall in anywise affect any provision contained in the Passengers Act, 1852, concerning the carriage of medical practitioner by the class of ships therein named 'Passenger ships' nor shall any such passenger ships, if not thereby required to carry a medical practitioner be hereby required to do so."

The most partial knowledge of the merchant service would show that the best appointed ships from Blackwall never carry above eighty men, and the finest paddle steamers that England sends to any part of the world do not carry above ninety-three men, so that this article exempts *all* merchant ships from the obligation of carrying surgeons unless they have passengers, and then only if the number comes up to one hundred. This never could be the intention of any one who knows anything of the daily accidents and casualties to which people are liable in a voyage to India, China, or Australia. Shipowners, however, require no such law, for they always take good care to advertise the carrying a surgeon, even when there are fifty or sixty persons on board, for they well know that otherwise they would have no passengers in their ships, and that there are not many captains who would take that responsibility.

Then again as to the trials of captains for the loss of their ships. What nautical man, either of the Navy or Merchant Service, would consent to such an arrangement? Would a Captain, R.N., or perhaps an Admiral, consider himself in the right place if he were obliged to play second fiddle to a Police Magistrate? or would any one in the merchant service approve of a trial involving nautical science and seamanship in a Court notorious only in the locality for the adjustment of such disputes as arise at Greenwich fair, or where justice is

ably enough administered between drunken husbands and scolding wives?

The marked difference in the position of the French maritime population and ours is also as great as is the care of their Decree to make the most of their means compared with our own. The maritime inscription draws within its power not only every sailor, fisherman, or boatman, but also every artizan who can in any way be usefully employed in the dockyards. Every one fit for service is enrolled, and the list is kept up by certain officials called syndics, who have considerable power in their way, and are generally small shopkeepers, something of the class of our tax-collectors, and can enforce by means of the gens d'armes the attendance of any members of the inscription required for the public service who reside within their district. These syndics are paid by the Government a salary of about 300 francs per annum.

When the Russian war broke out, a clean sweep was made of all the inscription for service, and all the shipwrights, carpenters, smiths, &c., were sent off to the dockyards, where they were maintained in barracks, like the seamen fitting out, and they worked for the service of the State at wages so low as to be scarcely credible. In this manner the French were getting through their work, and building their floating batteries and gunboats at Cherbourg, Brest, Rochfort, and Toulon, while our union-men were getting 25s. per day for the same work in our private yards. It was generally supposed that our master shipwrights were overpaid by Government for these contracts; but so far from this, it turned out an actual loss in most cases, owing to that pernicious system of trades unions, which are such formidable evils about London, and which we have not as yet had the energy to grapple with. Thus, though the work was done *at last*, we paid through the nose in every possible way. This subject is too long to explain here, but whenever a press of work takes place, the master shipwrights are completely in the power of these unions, and the men keep to their agreements or not just as they please.

In the French merchant service every captain must have served three years in the Navy in some capacity or other as part of his qualification for command. This is a law that tends very much to amalgamate the services, and facilitates the operation of the decree by the habitual intercourse resulting from it.

In looking over the several articles which require our notice, we now come to Art. 4, which runs thus:—

"Art. 4. All persons included in the preceding articles shall continue to remain subject to the conditions which it provides in case of the loss of the ship by wreck, the chances of war, or any other cause, *until they are delivered over to a French authority.*" This also extends to passengers if they agree to share the fate of the crew. Now in this instance the discernment of M. Ducos has provided against a very great evil which has always existed in the British merchant service, and which is, that by our laws the moment a vessel is lost or abandoned, the authority of the commander entirely ceases. But

this has often led to the loss of many lives, by the crew not keeping together for their mutual safety. Instances of this fact are quite common; but I will now only mention one case, that of the loss of the *St. Abbs*, an account of which appeared some time back in the *Nautical*; although I could mention others, when many lives have been lost from this cause. Yet as a set off there are others in which our seamen, having confidence in the ability of their officers, have voluntarily obeyed orders until all lives were saved that could have been. This has been exemplified in the whole of the losses which have occurred abroad in the large steam companies' vessels; particularly in the case of the *Tay*, where, if the crew had not continued to obey orders, not a man could have escaped.

In Art. 5 of the French Code, we see the jurisdiction which is entrusted, 1st, to the Commissary of the Maritime Inscription: 2nd, to the Commanders of ships of war: 3rd, the Consuls. Now as we have no Commissaries of Maritime Inscription, and as the Commanders of our ships of war have sometimes enough to do to keep their own ships in order, and would never adapt themselves to be troubled with our merchant ships, which are so much more numerous than those of France, the only efficient manner in which we could form Maritime Courts for the maintenance of proper discipline would be to have a first rate nautical man as a permanent magistrate of the Port, at every place at home and abroad where British ships are in the habit of collecting. This responsible officer might be the British Consul himself if a nautical man, or a naval or mercantile officer, provided he had not been too long out of employ, and was well known in either service as one who would maintain authority with strictness and justice to all parties. To complete these Courts suitable to English notions, it would be necessary to give the first class captains of the mercantile marine commissions similar to civil magistrates, to have full power upon the high seas and in every port of Great Britain and the colonies. These captains should have command of ships carrying a crew of forty persons and upwards, and they would then be found men of sufficient responsibility to form a Court of five, similar to our petty sessions, but with more extensive powers, under a new Code of Laws for the maintenance of discipline to be formed by a Committee of *nautical men* and sanctioned by Parliament.

Those small infringements, described by the French Code as *faults* of discipline, being of a trifling nature, may be left to the discretion of the captain. But serious offences and *crimes* not capital nor involving transportation, might safely be entrusted to these Maritime Courts, both in the case of officers and men, and would not only be more satisfactory to all parties, but remove that scandal on our laws in having maritime offences tried by men wholly ignorant of even the technical language of seamen, and who never can take the slightest interest in the welfare of our mercantile marine.

From these observations and suggestions we may pass over the jurisdictions, and take the next article which concerns us. This arti-

cle, No. 46, is as follows:—"The proceedings before the maritime commercial tribunals are not subject to any charges nor any tax whatsoever." The spirit of this article shows the great interest taken by the present Emperor of the French to facilitate the ends of justice, and not to allow the Code to remain a mere dead letter. But in our English merchant marine, the prosecution of dangerous offenders, such as mutineers and others, is attended with so much expense that they frequently escape altogether. Thus we often hear of men being landed in irons at the Western ports, but we hear of no adequate punishments, as no owners will go to any expense in prosecution, and a captain has no means of following it up. Ships are also often put to expenses for the maintenance of some of their crew as prisoners in jails in the colonies, and sometimes an owner will tell the captain he is responsible for these expenses, and that he as owner will pay nothing. And if the captain differs with his owner on this point, he may be coolly told, "*That his services are no longer required!*" What becomes then of justice? Thus the character of the merchant service suffers.

In reading Art. 55 it will strike many officers of our merchant service as rather a severe punishment, the compulsory service for a term on board a ship of war. But where these officers have formerly served there, as is mostly the case, it does not come to them with such force as it would to an officer in our merchant service. Compulsory service on board our men-of-war was, however, continued as respects seamen for some few years after the peace of 1815, in certain cases, more particularly with smugglers, who did good service, and were well spoken of at the battle of Algiers. The Admiralty, however, with the view of making the service more popular, abolished this practice, considering it might prejudice the service when being completed on the voluntary principle.

(To be continued.)

PRIVATEERING IN THE WEST INDIES,—*During the War.*

(Continued from page 527.)

The reader, perhaps, may have felt some interest in the career of this strange character, and be desirous of learning the finale,—I shall endeavour to satisfy his curiosity to the full extent of all that is known of the winding up of the chequered life of our celebrated hero. Should he (the reader) have fancied, as he probably will have done, that it must be in keeping with the former tenour of the surprising acts of the man, I can assure him that he will not be disappointed,—the very last figuring on the stage of existence—if it was the finish—which some thought doubtful—showed the "ruling passion strong in death!"

In physical cases when we see a flood of tide, we naturally expect

that an ebb will follow. This is an operative law due to attraction and gravitation,—a fact, however familiar to us, that is still a mystery. Are there no mysteries in moral examples—no laws of control—no effects following causes? Providence works unseen—often unsuspected. The wild sallies of a confused imagination impress the mind of finite reason with its fallacies, and man dreams of Fate!—of the irresistibility of a *doom* which follows his steps, and at the fitting moment puts a final seal upon his acts—whereby he is "known no more!" Fatalists are denounced as being superstitious, but this is obviously overstrained, for the word *fate* is only another term by which men express the unerring hand of a superintending Providence: there is no more superstition in the belief than in that of the fallen nature of man, and his consequent liability to error; and there is not a man existing but entertains it. But the fate which attends a man or a nation has nothing supernatural in it. The circumstances attending the career of an individual during his life and those of a nation during a period indefinite, may be traced as causes and effects, leaving morals as guards and guides for future use. These are the moral mysteries, so only indeed because our limited perceptions cannot grasp the infinite—fate in its *general* acceptation;—the fatalism, particular,—such as entertained by Buonaparte, for instance, has a more circumscribed range: in *his* fancy events were all pre-ordained. There was no possibility of individual actions being otherwise than they were. His *star of destiny* directed, and the consummation was fulfilled. That which was to be was—and a certain doom awaited him—which it was not in human power to turn aside. In the abstract, this fancy accords strictly in the chain of evidences to Pope's universal appliance of the sentiment that "whatever is is right;"—but it goes beyond its general inference, as he robs himself of self-will;—but in that, be it observed, he was not singular. There were thousands who believed him to have been a scourge—an instrument in the hands of Providence to punish and reprove as well as to improve the millions who had been rioting in the evil passions of human caprice, and the inhumanity of feeling: if so—then he must be acquitted, whilst others see nothing more in the whole tenour of his life than the natural consequences of moral cause and effect, without denying the superintendence of Providence. There are fixed laws in moral as in physical cases, which are inevitable, and, because the mind is finite, and cannot see the regular gradations of those laws, which, like those governing the changes of atmosphere, are apparently complicated, man becomes puzzled, and lost in the mazes of the mystery. Hence, whatever he cannot clearly comprehend or make out distinctly, becomes a mystery to him. No doubt this was designed. Possessing the infinite he would be above his nature—and there would be nothing left for him to do. Enough, however, has been vouchsafed to him—let him be grateful, and act the part allotted to him well—all the rest he may safely leave to Heaven.

After Love's wonderful escape, he was not heard of again until he reappeared in his privateer off the island; in which he was as usual successful in capturing our merchant vessels. The news of his pre-

sence was soon conveyed to Port Royal; and if it did create a good deal of surprise among the merchants who were the sufferers from his activity and vigilance, many an old tar's face was lit up by a smile on hearing of the event, and many a shake of the head among the superstitious of the *genus*, showed the drift of the thoughts which flitted through their brains,—the idea that any individual with the attributes merely of human nature could play such pranks, was in their estimation perfectly ridiculous—he could be nothing more nor less than an imp of Satan! Nor did the sequel convince them to the contrary.

It may easily be believed that our men-of-war were on the alert, and that there was spirited emulation among the captains and commanders who should secure the arch-piccaroon; but none was so fortunate as actually to capture him.

From the last accounts which related to this extraordinary character it appeared that H.M. brig *Elk*, Capt. J. R. Dacres, while cruizing off the island of Navassa, between St. Domingo and Jamaica, fell in with and gave chase to Love's privateer; during which a heavy squall, attended with rain, came on, and completely obscured her from view. The *Elk* running off the wind without daring to reduce her sail, unfortunately came in contact with the privateer, and striking her between the masts, cut her in two, and passed over the wreck, providentially without endangering her own safety! At this critical moment, Capt. Love, with his usual presence of mind, was seen to cut away the small boat from the stern of his sinking vessel; and the time just allowed the English officers to observe that he got clear of the wreck!

This circumstance was perfectly accidental, and, as I understood, happened in consequence of the *Elk* bearing away to save her masts—then under press of sail—from being carried away by the violence of the wind, and the privateer having lowered her sails and rounded to the wind, for the same purpose, as for the intent of eluding the vessel of war in pursuit of her.

When the squall ceased, no vestige of the unfortunate schooner appeared, and it was doubtful whether Love had swamped in his little boat, or got clear off, with his accustomed good fortune. The *Elk* had run some miles to leeward before the squall ceased: it is therefore possible (but not probable) that,—especially if a vessel was at hand at the time,—the great privateer captain may have escaped. A boat, especially a tiny one, is but a small object, indeed, on the bosom of the open ocean, and might easily escape notice in misty weather; and he may have gone before the wind and landed on the South-East side of Jamaica: but, if this had been the case, some account of the event would, there is scarcely a doubt, have been made public. It is also within the bounds of probability that he may have reached Navassa, and have been taken off by some passing vessel, if the accident happened to windward of that island. The greater probability, however, is that he perished, and was buried in the interminable depth of that element upon which he had been so long a terror!

"No tomb shall e'er plead to remembrance for thee,
Or redeem form or fame from the merciless surge;
But the white foam of waves shall thy winding-sheet be,
And winds, in the midst of the ocean, thy dirge!"

This is the last scene in the drama of life played by this remarkable actor. And whatever may be thought of the moral character of the man—who certainly possessed some redeeming qualities—it cannot be denied that he was as accomplished and as perfect a seaman as ever walked a vessel's decks. His adventures, if they had been collected and detailed in a narrative, would, for diversity and singularity, perhaps, not have yielded to those of any other sea-adventurer who had figured in the romance of real life. Whether he was or was not a British-born subject, admits of doubt; he spoke the French language with purity, as indeed he did the English; but there was a certain *je ne sçai quoi* about the man that did not bespeak him a Briton. I, certainly, at first sight, should have taken him for an American of the United States; but his speech told at once that he was not a Yankee. The impression of his being an Englishman was strong in the minds of all the naval officers serving at Jamaica; yet it is very doubtful that he was one; he was not certainly a Spaniard; but I think it not at all unlikely that he was a French-Hibernian, or Gallic-Scot, descended from a family who had settled in France during the revolution of 1688, or still later, during the Irish rebellion. However, his father-land was as much an enigma in reality to everybody but himself—and perhaps even to himself—as was that of the noted Capt. John Perkins of the British Royal Navy.

Never, perhaps, was there a man, take him altogether, that appeared so complete a master of his profession; or that ever displayed more energy and skill in execution, or courage and presence of mind in the moment of danger. It was his conviction, he said, that the more hazardous a game a man plays in warlike pursuits, the more he is likely to be successful; and he thought that many of the privateersmen, particularly among the Spaniards, were not enterprising enough, or sufficiently bold, to succeed in their undertakings: their timidity often brought them into scrapes, and ultimately led to the capture or destruction of their vessels.

These observations applied generally may be found true. The fruit of bold temerity, however, is not always successful. As much depends on the judgment and skill of the leader as on the boldness and daring courage of himself and followers. An officer, of whatever nation, who commands a party or a vessel, unless he be possessed of quick discernment to take advantage of circumstances as they arise, will often find to his sorrow that mere animal courage is not alone sufficient to ensure success, though it be an essential requisite in warfare.

Love, in the warmth of his communicative moments, unreservedly put us in possession of some of his secret adventures, for which we were not certainly prepared; but there was no doubt whatever entertained of the truth of the facts he narrated. He was in the habit, he

said, of going over from St. Jago de Cuba to Port Antonio, in Jamaica, in the free-traders, and thence overland to Kingston. As little vigilance was exercised by the authorities in this licensed intercourse during the war, he could do so at any time without exciting the least suspicion, as nobody inquired who he was, or what object he had in visiting the island. The idea of a spy taking advantage of the admitted intercourse, to make his observations, never entered the heads of the local magistrates. He therefore followed his course, not only without molestation, but with the most perfect impunity! There were more strange things in the world than entered into the circumscribed philosophy of these domini, who, indeed, were often connected, in the way of traffic, with the foreign agents engaged in this curious mode of waging war with the weapons of peace.

In these excursions, our hero assured us that he made it his business to learn every particular respecting the vessels at the different ports; the names and descriptions of those of his Majesty's ships that he had not seen or encountered in his cruises; their rate of sailing, the character of the captains, &c. And on these topics, he said, he had frequently conversed with the officers of the navy, at billiard-tables, coffee-rooms, &c., without their having once suspected that he was any other person than a loyal Englishman! Thus, he obtained every information he could desire. And then returning to his vessel at St. Jago, commenced his cruize with a certainty of success that could not attend any of the others not in possession of such information. This, with the skill of the man himself, may account for his having made so many prizes, and accumulated so immense a fortune. It is altogether a singular feature in the adventurer's life, but in strict keeping with his peculiar idiosyncracy. He had often enjoyed a secret triumph on being *told in Kingston*, that "that notorious depredator Love was likely *to be caught*, as our ships were on the alert for him where he was *known to be*—" off the Mole, Cape François, Monte Christo, or any other favourable coursing ground, whilst the boaster was absolutely speaking to the "notorious depredator" himself! Before Love was taken by the *Desirée* frigate he was known personally only to the officers of the *Tartar*. Of course he took care not to pay his visits to Kingston whilst that ship was in port. His information on that head coming as correctly to him as to the Admiral! The promotions and changes which took place in the squadron were known to him through the newspapers. And in the whole mercantile concern of the island he was well instructed.

There is no doubt whatever that this extraordinary man had some friends in Kingston, who found it greatly to their own interests to supply him with the latest information that could be relied on. They were probably foreigners, of which, at the period, there were some thousands in that tropical city. And, no doubt, in the character of a Free Trader, and under an assumed name, he had also friends among the British who resided there, but who little dreamed that the accomplished man of business with whom they trafficked, was the notorious Capt. Love who made so free with their ships on the high seas. It is

highly probable that he had a large fund at Kingston, from which he could at any time draw whatever sum he might on an emergency require to carry on his plans. The time came when such a resource served him to some purpose, as I have shown. We may safely believe that to be a fact, as it was impossible for him to have got off without external help; and nothing can be done in Jamaica without money. Indeed his confident anticipation of the event showed that he had, as a matter of precaution, amply provided the means and ways of meeting any such contingency.

Jacque Matthieu, the vice-king of the rovers, although of a different stamp to Love, had equally the "dare-devil" in him. He was a rough clever seaman, full of intelligence and activity, but without the education or the amount of knowledge possessed by the Grand Piccaroon.

Incredible as it may appear, it is a well known fact that Jacques had *repeatedly*, after dark, stood in with his schooner towards the *Palisados*, a narrow strip of land, or rather sand and mangroves, stretching from Rock Fort to Port Royal to the distance of nine miles, and dropped a small canoe with two trusty men, who, after drawing their light vessel over the spit, reembarked on the inner side, and paddled to the town of Kingston, where they remained the whole of the following day, purchasing fresh provisions and other necessaries, and obtaining information of the sailing and destinations of the merchant vessels lying in port. At night, when all was quiet, they returned by the same route they had come, when, by agreement, the privateer was in shore to receive them. This was a pretty audacious piece of speculation, to be tried under the muzzles of the cannon of Rock Fort! It is no impeachment of the sentinel's vigilance on the parapet that such events really occurred. Jacques no doubt took care not to select the brightest moonlight nights for his enterprises. But even if he had, such a circumstance would not have caused any suspicion, as the droghers or coasters are in the constant habit of so doing when the sea breezes fail them after sunset. Indeed, if Jacques had anchored his schooner off Plumb Point, and he had been seen, no notice would have been taken of him, unless the guard-boat happened to be outside the harbour; as it was a common practice with vessels to do so. I have myself anchored there in a prize, not being able to get into port before the night set in and the land wind came off. The guard officer seldom went outside of Port Royal before four o'clock in the morning.

The Palisado *(Palizáda)* is a very curious spit of sand and mud overgrown with mangroves, the abode of crabs and aquatic fowl. It has its use as a natural breakwater to Kingston Sound, which it protects from the encroachments of the sea, especially during the action of those terrible tempests called hurricanes, which periodically sweep with irresistible fury over the Caribbean Sea and islands. But it has been terribly neglected by the authorities, who seem perfectly content to let it remain in its primitive state, although there is little doubt of its being a fertile source of disease, from the miasma which arises from its saline swamps or morasses. It should be entirely cleared of the

mangrove trees, and consolidated, risen above its present level, and fortified, and a causeway (or railroad now that the mania of steam power has reached the island) formed from Rock Fort to the town of Port Royal. I have pointed this improvement out in my "Nautical Rambles," to be found in the *Nautical Magazine*, and I hope it will be followed.

I shall close this account of Privateering in the West Indies with the narration of an exciting incident which occurred during the absence of the frigate from Cumberland Harbour in Cuba, when she went in search of Capt. Love's privateer, after the action which Lieut. Packenham had had with her.

I have incidentally mentioned that we had re-captured several vessels during the cruize. These were left in charge of the second lieutenant, Edward Birt, in the above named anchorage. These craft had a narrow escape from seizure by two of the enemy's privateers. But the restless spirit of an enterprising young midshipman, named Roberts, belonging to H.M.S. *Æolus*, Capt. Evans, prevented any serious occurrence. At the close of the day on which the ship sailed, the officer left in charge of the prizes sent a boat to the harbour's mouth to reconnoitre. She returned with the intelligence that two feluccas were working up along shore a few miles to leeward. The lieutenant lost no time in preparing to resist them, should they attempt to cut the prizes out. He got a spring upon his cable, and removed the men from the different vessels into the tender, leaving a midshipman only in each, whom he enjoined to keep a strict look-out, and on no account to show a light.

Night approached before the enemy's vessels had gained the harbour. And, as they could not have seen the prizes, it was conjectured that they might be ignorant of there being any there. At ten p.m. the sound of their sweeps was distinctly heard, and shortly after a light was seen on the beach to the Westward of where our vessels lay. All was silent in the prizes, waiting anxiously for their advance or departure. In this state of suspense our party remained until past midnight, when a small boat was observed approaching the lieutenant's schooner. It was at first doubtful whether she came from the privateers to reconnoitre, or from one of the prizes to communicate intelligence. She was permitted to come alongside, and young Roberts jumped up the side with that light step peculiar to the seaman. He informed the commanding officer that impelled by a zeal for the service, and a desire to discover who the strangers were, which he could not subdue, he had, with the utmost caution, paddled his little boat to the shore, near the spot where the light appeared. There, to his astonishment, he saw a large assemblage of privateersmen carousing and singing *à la boucanier*, around a fire lighted on the sands of the beach, near to which their two vessels were anchored. He approached within the distance of a dozen yards of the group, separated only by some mangrove trees, through which, by the light of the fire, he could observe their movements without being himself seen by them, and it was his opinion that they were rovers.

On this information, which, although obtained without orders, was nevertheless welcome, inasmuch as it dispelled uncertainty, the lieutenant thought it his wisest plan to let the regaling Dons know that he was armed, (the launch's carronade being mounted on board,) and prepared to resist any attempt that might be made on the vessels under his charge. Accordingly, a discharge from the gun and small arms was directed towards that part of the shore where the light appeared, and which very soon had the desired effect. For a salutation at that dead hour of the night so unexpected, as was supposed, not only discomposed the supper party, but caused them to retire so precipitately to their vessels, that some of their fare was left behind. In a short time after they were heard sweeping their vessels; and, as the sounds gradually became fainter, there was no doubt of their retreat, and I dare say with watchful eyes cast towards the rear, in expectation of the approach of some men-of-war's boats. What their object was in visiting the harbour, which they all knew was a place of resort for British ships, it is hard to say. But it is probable that, on receiving the fire of the schooner, their first and only conjecture was that a vessel of war was at anchor unseen by them on entering. A precipitate retreat was therefore the only chance, as it appeared to them, they had of escape. Had they not been alarmed by the salute from our schooner, it is also probable that, when daylight showed to their awaking eyes the group of defenceless vessels within their grasp, even allowing them but a small share of enterprise and prowess, they would have attacked, and from their force and number of men (not less than forty in each) have succeeded in carrying one or two. If our party had numbered twenty or thirty men, their two vessels might have been carried whilst their crews were discussing their supper on the sands.

Instructions for Saving Life from Shipwreck.

Parts of Apparatus.—The following parts of the apparatus for saving life from shipwreck, are required to be provided in addition to the projectiles and the means supplied for launching them; namely,

A thin cord, called the *Rocket line*, one end to be attached to and launched with the shot or rocket;

A *Hawser* of 3 inch or 3½ Manilla rope from 40 to 120 fathoms, according to the steepness or flatness of the shore;

A *Whip* of Manilla line about 1½ inch, rove through a single tailed block. The whip to be twice as long as the hawser, and the tail of the block to be at least 2 fathoms in length. The ends of the whip to be spliced together, and so converted into an endless rope;

A *Sling*, float, basket, cot, or some such contrivance, in which to place the person to be rescued, and haul him ashore. The word

"sling," as used in these instructions, is intended to include all contrivances of this nature;

A *Traveller*, inverted block, leaden horse-shoe collar, or some other contrivance, to be attached to the *sling*, and carry it along the *hawser*;

A *Double Block Tackle purchase* for setting taut the hawser;

An *Anchor* with one fluke, to be buried in the earth, sand, or shingle, to which to set up the hawser by means of the tackle purchase. Or in some places where the shore is composed of soft shingle or sand, and where an anchor will not hold, a stout plank 5 or 6 feet long, with a fathom of chain of sufficient strength fastened round it amidships, may be substituted for the anchor. This plank being buried 3 or four feet beneath the ground, and the end of the chain, with a ring attached, led to the surface, the hawser may be set up to it, by the tackle purchase in the same manner as to an anchor;

A *red flag* 2 feet by 3 feet, fixed at the end of a staff 5 feet long; and a *Lanthorn* with a pane of *red* glass fixed in it: to be used as signals in the manner directed hereafter;

Two or three *spades* or shovels, a *hand-barrow*, a *Salvagee strop*, a few pieces of *extra rope*, to be used as occasion may require; 3 oars or *small spars* are likewise often of service where the shore is flat, to be used as a triangle over which to pass the hawser, and thereby raise it higher above the surface of the water.

Certain Officers to take command of all persons assembled at a wreck.—In the absence of the Receiver of Wreck, or at places in which the Receiver of Wreck was not appointed under the provisions of the Merchant Shipping Act, the Inspecting Commander of the Coast Guard, or the Principal Officer of the Customs or of the Coast Guard who is present, is to exercise the power given him by the 441st to 447th sections of the Act, and is to take command of all persons assembled, and assign to each such work as he may consider necessary for establishing a communication with the wrecked ship, and hauling the people ashore speedily. Should any persons refuse to do the work allotted they are liable to a penalty of £50 under the 441st section of the Act.

Coast Guard to have management of apparatus for saving life.—When a Receiver of Wreck is present, whose appointment was made since the passing of the Merchant Shipping Act, he is to take command of all persons assembled at a wreck; but the management of the mortar and rocket apparatus should be left in the hands of the Coast Guard.

Not to interfere between master and crew unless requested.—Receivers of Wreck and Officers of the Customs and Coast Guard are to bear in mind, that they have no power to interfere between the master of a ship and his crew in matters relating to the management of the ship unless requested to do so by the master.

Directions for Landing the Crew of a Wrecked Vessel.

Signal to be made on board the wreck when communication has been effected.—It is unnecessary to describe the manner in which the rocket or mortar is to be arranged for firing, as perfection in that particular can only be attained by practice: but when the line has been thrown over the wreck and has been grappled by the crew a signal will be made in the following manner. If in the day-time one of the crew, for this purpose separated from the rest, will wave his hat or his hand, or a flag or handkerchief; or (if at night) a rocket, a blue light, or a gun will be fired, or a light will be shown over the ship's gunwale for a short time, and will then again be concealed.

Whip to be made fast to rocket line.—On this signal being seen on shore the inshore end of the shot or rocket line should be made fast to the whip, being bent round both parts of it at about two fathoms from the tailed block, and a signal should then be made as follows, for those on the wreck to haul off the line.

Signal to be made on shore.—One of the men on shore is to be separated from the rest and in the day-time is to wave a small red flag, or at night is to show a red light for about a minute and then again conceal it.

Whip to be hauled off by rocket line and made fast on board.—The crew of the wreck on seeing this signal will haul on the shot or rocket line till they get the whip and tailed block, when they will make the tail of the block fast to some secure part of the vessel; and will cast off the rocket line, and make the signal as before for those on shore to haul off the hawser.

Hawser to be hauled off by whip: and to be made fast on board.—As soon as this signal is perceived by those on shore, the whip (being previously made fast to the hawser at 2 or 3 fathoms from its end) will be manned, and the hawser hauled off by it to the wreck, by those on shore.

As soon as the persons on the wreck get hold of the hawser, they will proceed to make it fast to the wreck at about 18 inches *above* the place where the tail of the block is fixed; and when they have secured it, and disconnected the hawser from the whip, they will signal as before to the people on shore.

Sling to be hauled off.—On perceiving this signal, the hawser is to be set up by means of the double block tackle purchase: and the sling (the traveller of which will have been adjusted on the hawser) is to have the whip secured to it; and, by means of the whip, is to be hauled off to the wreck by those stationed for the purpose on the shore: who also on the next signal being shown, implying that a person is secured in the sling, will haul him ashore, and repeat the same operation to and fro until all are landed.

Hawser not to be set up by tackle on all occasions.—Circumstances may require some deviation from the above rules. For instance, if the wrecked vessel be subjected to violent motion by the beat of the sea, it will be better not to set up the hawser at all, but to man it,

with as many hands as can be spared, and reeve it over a triangle, when by hauling and veering on it, following the motion of the vessel, a sufficiently uniform strain on it would be obtained without the risk of carrying it away.

Cases when hawser need not be used.—Again, circumstances might arise, as they have sometimes done, when the immediate breaking up of the wreck might be imminent, and the delay in getting the hawser on board be of serious moment. In such a case, if the apparatus is provided with a floating sling buoy it should be hauled off by the whip alone, and the wrecked persons brought ashore in it floating in the water. *The hawser should however be always used in preference when practicable.*

Officers to be acquainted with the use of apparatus: and to attend to periodical exercise of crews.—As much of the success in the use of the apparatus depends upon the promptness with which it is brought into action, the Inspecting Commanders and Chief Officers of the Coast Guard should make themselves thoroughly acquainted with the use and application of all its parts, and should take care that this is also understood by the Officers and men under their command.

The Inspecting Commanders themselves should superintend the periodical or occasional exercise of the Officers and crews of stations under their command in the management of the rocket and mortar apparatus.

They will necessarily also see the advantage of dividing and stationing the men on all occasions in such a manner as to secure the utmost order and promptness in the whole proceeding.

Directions to Masters and Crews of Ships.

In the event of your vessel stranding within a short distance of the United Kingdom, and the lives of the crew being placed in danger, assistance will, if possible, be rendered from the shore in the following manner; namely,

1. A rocket or shot with a thin line attached will be fired across your vessel. Get hold of this line as soon as you can, and when you have secured it let one of the crew be separated from the rest, and, if in the day-time, wave his hat or his hand, or a flag or handkerchief; or if at night let a rocket, a blue light, or a gun be fired, or let a light be displayed over the side of the ship, and be again concealed, as a signal to those on shore:

2. When you see one of the men on shore, separated from the rest, wave a red flag, or (if at night) show a red light and then conceal it, you are to haul upon the rocket line until you get a tailed block with an endless fall rove through it:

3. Make the tail of the block fast to the mast about 15 feet above the deck, or if your masts are gone, to the ***highest secure*** part of the vessel, and when the tail block is made fast let one of the crew, separated from the rest, make the signal required by Article 1 above:

4. As soon as the signal is seen on shore a hawser will be bent to the whip line, and will be hauled off to the ship by those on shore:

5. When the hawser is got on board, the crew should at once make it fast to the same part of the ship as the tailed block is made fast to, only about 18 inches higher, taking care that there are no turns of the whip line round the hawser:

6. When the hawser has been made fast on board, the signal directed by Article 1 above is to be repeated:

7. The men on shore will then pull the hawser taut, and by means of the whip line will haul off to the ship a sling, cot, or life buoy, into which the person to be hauled ashore is to get and be made fast. When he is in and secure, one of the crew must be separated from the rest and again signal to the shore as directed in Article 1 above. The people on shore will then haul the person in the sling to the shore, and when he has landed will haul back the empty sling to the ship for others. This operation will be repeated until all persons are hauled ashore from the shipwrecked vessel.

8. It may sometimes happen that the state of the weather and the condition of the ship will not admit of a hawser being set up, in which case a sling or life buoy will be hauled off instead, and the persons to be rescued will be hauled through the surf instead of along the hawser.

Masters and crews of shipwrecked vessels should bear in mind that the success in landing them may in a great measure depend upon their coolness, and attention to the rules here laid down; and that by attending to them many lives are annually saved by the mortar and rocket apparatus on the coasts of the United Kingdom.

The system of signalling must be strictly adhered to: and all women, children, passengers, and helpless persons should be landed before the crew of the ship.

The illustrations will help to explain the manner in which the mortar and rocket lines are used.

T. H. FARRER,
Assistant Secretary, Marine Department.

Board of Trade, 28th February, 1857.

MOROCCO: PROCEEDING UP THE BOORAGREG.

About four miles from Rabat, and to the Eastward of Salee, the town where Robinson Crusoe underwent imprisonment, and from whence he subsequently escaped with Xury, the Moor, are the interesting and mysterious remains of the town of Shella, appropriately described in geographical works as a decayed town of Morocco, containing many Moorish tombs, held in great veneration, and considered a sacred asylum only to be entered by Mahomedans. I had an opportunity of visiting this extraordinary place under the following circumstances.

Shortly after my arrival at Rabat, I received a visit from the Grand "Sheriph," the Mahomedan High Priest or "Archbishop" of Rabat, a venerable looking man, and much less fanatic in his ideas than the Mussulmans generally are. His manner is even comparatively dignified, and commands almost respect. He told me that he should take my house under his protection, and consider it as his own. "*Dav di Alek, dav di Alli.*" "Your house is my house."

On the strength of this avowal of friendship, he called on me subsequently, and expressed a wish that I would send him some sugar to his "saint house." I accordingly sent a loaf of sugar, and a parcel containing some good coffee, dates, almonds, and English mustard, the latter of which will no doubt last him much longer than the sugar.

Subsequently to this, I received a visit, through his recommendation I have little doubt, from a Chief of one of the Kabyll tribes, who came loaded with eggs and poultry, as the supposed means of approaching near a Consul. I was so much pleased with the friendly unsophisticated manner of this Kabyll, that I expressed to him my intention of visiting his Douac, a village of tents; and fixed a day for going up the river Booragreg in my boat, a distance of from six to seven miles, although the local authorities, I presume from an overrated regard of our consular persons, have repeatedly requested the French Consul and myself never to go beyond the town without an extra guard of soldiers.

On the morning of the appointed day, the Chief Kaid or Governor of the wandering tribes, sent his brother to my house to accompany us up the river. And feeling more confidence in his escort than in a dozen soldiers from Rabat, I embarked with the master and two of the crew of a British vessel, in my own boat, under a good awning, with a "Jack" flying where it ought to fly, taking with me my usual suite, with a Jew, and one soldier belonging to me in whom I could trust. The boat was loaded with bread, looking-glasses, and sugar-sticks.

Thus prepared to meet the men with bread, the women with looking-glasses, and the children with sugar, we proceeded up the river, landing opposite to Shella, and walking with every caution and respect for the prejudices of the Moors, we entered the ruined, but still strong, and beautifully constructed masonry of the great gates of Shella.

We found ourselves on a large "radis indigestaque moles" of broken, irregular, sloping ground, forming a square, containing from six to eight acres, with a high and once elegant minamette-topped wall, but in the last stage of decay. Here and there were to be seen foundation walls of houses, and occasionally a piece of pavement. But throughout the greater part of this huge enclosed square we met with long grass, thorny shrubs, and blocks of lath and stone, the remnants of fallen walls. At the lowest end of the ground are several Moorish tombs and saint houses, with a splendid looking mosquée.

But here, of course, we felt that it was forbidden ground for Christians, and carefully avoided further intrusion.

After leaving these buildings, which, although surrounded by ruins, are kept in good preservation, our attention was drawn to a row of seven or eight fine arches of masonry, which we were informed were the remains of the bath rooms, in the time when *fuit Ilium*.

We left this strange scene, I may say as far as I was concerned, most deeply and awfully impressed with the wonderful vicissitudes not only of man but of towns and empires, for all Marocco promises very shortly to become what Shella is.

Continuing our journey up the river, passing on either side magnicent plains of rich table land, covered with horses, camels, horned cattle, and almost innumerable asses, and disturbing the quiet resting place of thousands of pigeons and turtle-doves in the cavities and interstices of a high perpendicular rock, we reached the nearest favourable landing place, and walked across a rich plain till we arrived opposite to the Douac, the encampment of Kabylls, I was on my way to visit.

The wealthy Kaid or Governor came forward to meet us, and welcomed us with all that genuine patriarchal simplicity and warmness of heart which is far more frequently met with among savages than among civilized beings.

He took me by the hand, then by the arm, and holding me firmly, conducted myself and my party through innumerable savage looking dogs, (which caused us more uneasiness than any thing else,) and passing through a congregated crowd of men, women, and children, who eagerly flocked around us, as may well be imagined, to see a group of Christians and a Consul, led us to a large tent, where a handsome country carpet was immediately spread by the women for us to sit upon, and where we remained for some time the wonder and doubtless the admiration of all the spectators, for I have little doubt but that we astonished the natives.

This Arab encampment was in the form of a large mathematically planned square, (some, indeed I believe the generality of them, are round,) and the reception-tent was in the middle of the upper side of the square from the river. Poultry, horses, and cattle were around us on all sides in great abundance.

In the centre of this square was a coarse brown tent, which supplied the place of a chapel, or more properly a mosquée, for the Arabs to perform their devotions.

After the ceremony of regaling the men with fifty loaves of bread, the cost of which was about 4s. English money, and frightening the women with the looking-glasses, and captivating the children with bon-bons, we took leave of our friendly fellow creatures, to whom of course I related how delighted her Majesty the Queen, "the Sultanna," would be when she knew what a friendly reception the English Consul had met with among the Arab tribes. And on reaching

our boat we found it stocked with poultry, eggs, and water-melons, which these good people had sent down as an offering.

There is always such a peculiar interest attached to these chance interviews between Europeans and native tribes in Africa, that I have thought it worth while to send you this account while the facts are fresh in my memory.

J. Barrow, Esq.

The Indian Ocean considered with Reference to the Wants of Seamen.

(Continued from page 600.)

In order not to be thrown to the eastward, on leaving the Hooghly between April and September a ship should run along the West coast as soon as possible, if the wind permits, as far as the neighbourhood of Point Palmyras. Probably during the night the wind will veer a little towards land, and will be favourable for steering South, while during the day it veers seaward. In order therefore to profit by these changes, a vessel should be near land between two and three o'clock in the morning. In June and July these breezes are often pretty strong; but they are not always found, and if the ship has the regular monsoon it is still preferable to be near the coast instead of in the middle of the bay, where the sea is always highest. On this account, therefore, she should not get further off shore than will enable her to make a little southing.

In the case of a vessel near the coast of Orixa meeting with contrary winds, which will not admit of her getting to the southward, she should make to S.E., so as to get within sixty or seventy miles of the land, where she would find less current. It would not be prudent to stand farther out in the hope of meeting with a better wind. By keeping along the land or at a moderate distance to sea from it, and taking advantage of the changes of wind, for a ship is more likely to find the land breeze as she advances to the southward, she will find less difficulty in working to windward than in keeping out at sea.

On reaching Point Gordeware, the ship should not approach the coast South of this point, on account of the bays between it and Pulicat, but continue to work to the southward, keeping at a convenient distance from the land. From Pulicat she may easily make southing with the land breezes which come off during the night and the S.E. winds which prevail during the day, by keeping near the Coromandel coast.

If bound for Trincomalee, she should continue to work near the West coast of the gulf as far as Negapatam, and then stand out to cross the opening of Palk Bay, so as to reach the coast of Ceylon.

Route for coming down the Gulf of Bengal.—A ship coming down the Gulf of Bengal in the S.W. monsoon may follow the above directions until the middle of August, and the route is generally along the West coast of the gulf. Nevertheless, when she is bound for the West coast of India or for Europe, it is not necessary to keep so close to it as above said. If, on leaving Bengal, she has a good westerly wind, she should take advantage of it, steering South; and should the wind change to S.W. or S.S.W., she should make some boards along the West coast, and in standing to the eastward should be careful of the Andaman Islands. If she can work easily along the West coast, it will be better to keep to this route; if, on the contrary, there is difficulty in doing so, she should tack to S.E., and take advantage of every change of wind to gain southing, keeping then in the middle of the gulf. When the wind admits of passing the Andamans about thirty or forty leagues West of the Little Andaman, she should continue the S.E. tack, for it is probable that she may also be able to clear the Nicobar Islands and Cape Acheen on the other tack to the westward.

Captain Miller does not quite agree with Horsburgh; indeed, he says, that on leaving Bengal a ship should take the S.E. tack, so as to pass West of the Andaman and Nicobar Islands. In case this cannot be done, he says, that instead of losing time in tacking westward, it will be more advantageous to pass North of the Andaman Islands, through one of the channels of the group—the principal one of the islands being the best. Then, having gained to the East of the Andamans, she should still stand southward until she loses the S.W. monsoon under the lee of Sumatra. Near the coast of this island the wind will be found variable, often favourable for again taking the gulf by the Strait of Surat or that of Pulo Bras, passing between Pulo Way and the Island of Malora.

Strait of Malacca.—A ship leaving Acheen or the Strait of Malacca in the S.W. monsoon should pass through the Strait of Surat if the wind admits. It will be better, says Horsburgh, to double the North extremity of Pulo Bras close in shore, where westerly currents are often found while at the same time they set N.E. between Pulo Rondo and the Nicobar Islands. Consequently, a ship should not make for the Gulf of Bengal by the great channel. A vessel leaving the Gulf of Bengal for the westward should not go too far East nor enter the zone to the southward between the parallels of 3° and 4° N. lat., for here the wind is very light, but attended with frequent squalls from S.W., followed by calms. As soon as she has gained a little West of Cape Acheen, she should endeavour as soon as possible to reach the S.E. trade, giving a good berth to the islands off the West coast of Sumatra; and this she will soon accomplish if she takes the most favourable tacks according to the changes of the wind.

With regard to the general rules for sailing in the Gulf of Bengal, according to the season, Captain Miller gives us the following in the *Nautical Magazine* for 1843.

From 15th Jan. to 31st May.	Going North or up the gulf, take the western side; coming South or out of it take the eastern side.
In June, July, and August ..	Going North or up the gulf, keep in the middle of it; coming South or out of it, take the eastern side, even East of the Andamans.
In September, October, and November	Going North or up the gulf, take the eastern side; coming South or out, take the western side.
In December and to the middle of January.	Going either North up the gulf, or coming South out of it, keep the middle of it and make small tacks.

Routes from ports on the East coast of India to those on the West.—A vessel from Tanaou, Madras, Pondicherry, or Karikal for ports on the West coast of India, the Red Sea, or Persian Gulf should adopt the following method of leaving the Gulf of Bengal. In leaving Tanaou, if the land and sea breezes are well established, she should take advantage of them as far as Pondicherry; but if she cannot do this she should keep out at sea, as in leaving Pondicherry. She should then make good a S.S.E. course or thereabouts, with the W.S.W. or West winds which are often found at sea. Near the equator the S.W. monsoon decreases and the winds generally veer to the South; she may then make to the S.E. on whichever tack she can best do so. According to the season, two routes are to be taken for ports on the West coast of India—the Northern and Southern Routes.

Northern Route.—The northern route is the most direct, but it should only be taken towards the end of June, July, and the beginning of August, when S.E. winds prevail near the equator. After crossing it to the West, keeping as much as possible in the prevailing winds, as soon as she finds the S.E. wind steady, which at this period is often the case in 4° or 5° S. lat., she should steer West between these parallels or on the latter; but on approaching the meridian of 69°, she should not keep to the southward of 4° 30′, in order to pass the North part of the Speaker Bank of the Chagos Archipelago. Having passed it, she should keep her westerly course and cross the equator on the meridian of 58° or 59° E.

Southern Route.—The southern route is more certain than the northern one during the whole of the S.W. monsoon. However, as in taking this southern route observations cannot sometimes be had, owing to cloudy skies and squally weather, and many seamen prefer the northern route. Vessels obliged to cross the equator well to the eastward, on leaving the Gulf of Bengal, Sumatra, or Java, should always take the southern route.

In taking this route a ship should endeavour to reach the S.E. trade as quickly as possible, and that part where it is well established at this period, between the parallels of 9° or 10°: from whence she should steer West, and if not sure of her position she should sight the

island of Diego Garcia, and then steer S.W., so as to pass South of the Centurion Shoal. In case of not sighting that island, she should steer West between the parallels of 8° and 9°, taking care to avoid the shoals South of the Chagos Archipelago. She should then return northerly again, and cross the equator on the meridian of 58° or 59°. As in the Northern route, whatever her destination may be, before returning into northern latitude she should stand sufficiently to the westward to reach it with the trade wind, which is sometimes very strong from West, producing a strong easterly current.

Persian Gulf.—If bound to the Persian Gulf she should cross the line on the meridian of 49° or 50° E., and then follow the directions given in the second division of this chapter.

Red Sea.—A vessel bound to the Red Sea, after having reached 65° E. long., should steer a little to the northward of West. She should pass near the northernmost of the Seychelle group, and if the weather permit should sight Dennis or Bird Island. From thence she would cross the line between 43° and 45°; then make for Cape Guardafui and sight the land some distance South of this cape, for if she be thrown to leeward no ordinary sailing vessel can ever recover it. She should then make her way along the African coast as far as Mait or Burnt Island. She may even keep along the coast further West, on account of the prevailing westerly winds, before standing over for Cape Aden, and even to Ras Amran if the winds allow her.

If going to Bombay, Mahé, or any port on the West coast of India, Horsburgh says cross the line between the meridians of 60° and 61°, for during the height of the monsoon strong westerly and W.S.W. winds prevail in tho Gulf of Oman, with a heavy sea. As a general rule, therefore, a vessel should not cross the line so far East during the height of the S.W. monsoon as to oblige her to cross it obliquely in order to reach her port of destination.

In running to the northward for Bombay a vessel should give the Laccadives a wide berth; nor should she approach the land before reaching the latitude of the Island of Kundary. If going to Mahé, Calicut, or Cochin, she should take the Nine Degrees Channel.

Remarks.—It may be observed here, that from April to October the West coast of Hindostan is rendered dangerous by the bad weather. The passage from the coast of Coromandel to the Malabar coast, is generally made between October and January; and from the latter for the Gulf of Bengal, the Strait of Malacca, Acheen, Bantam, Batavia, &c., from February to April.

Leaving the Malabar coast for Europe, some time in the course of December or to the middle of January is adopted, especially when it is desired to touch at the Mauritius or Reunion. A vessel sailing later than this would find great difficulty in passing the Cape of Good Hope. It may be as well to state these times for sailing, as it is useful to know them, in order to make the proper passage. And we will conclude these remarks on the Gulf of Bengal with some passages from ports on the West coast to those on the East and *vice versâ*.

Route from Ports on the East Coast of the Gulf to Rangoon.—From Bengal, during the N.E. monsoon, a vessel for Rangoon should sight Cape Negrais, and keep South of the Alguada Reef, which extends along the cape in this direction. During the same season, from Pondicherry or ports on the Coromandel coast, a vessel should make to the Northward and then take the channel North of the island of Preparis, or else the South channel of this name, according as she finds it most convenient. At this season, it will be better to make Easting when the reefs of Cape Negrais are passed, and to keep near the coast with the lead going, for there is very little tide, and the current from the rivers generally sets S.W. or N.W.

Vessels from the Strait of Malacca, Acheen, or the Nicobar Islands, bound for Rangoon during the N.E. monsoon, should sight the Western of the Mergui Islands, and then make to the Northward for the entrance of Rangoon.

The routes just mentioned also avail for ports on the coast of Martaban.

Leaving Bengal for Rangoon during the S.W. monsoon, if the wind permits a vessel should endeavour to make the island of Preparis, or what would be still better, Cocos Island. She would then take the most convenient channel, navigating so as to make the coast of Pegu, a little West of the bar of Rangoon. In the same season, when leaving Pondicherry or any port on the Coromandel coast, a vessel should endeavour to make Landfall Island, (near the Northern point of the large Andaman,) if the wind hangs to the Southward, or Cocos Island if the wind draws Westerly, and she would then pass through the channel between them. On leaving Cocos Channel she would steer East to sight the island of Narcondam; and then steer N.E. to make the coast of Pegu, a little West of the bar of Rangoon. If the land is made to Eastward she would make up her Westing with the tide.

A vessel from Acheen or the Strait of Malacca in the S.W. monsoon, should sight the island of Narcondam, and from thence steer for Rangoon bar.

Return from Rangoon to Ports on the Gulf of Bengal.—From Rangoon during the N.E. monsoon for Bengal, a vessel on clearing the river should shape her course so as to pass outside all the shoals near the coast of Pegu, thus passing Southward of the dangers off Cape Negrais. She would then continue along the coasts of Ava and Arracan, in order to reach the Hooghly.

If bound for Pondicherry or some port on the Coromandel coast, she would take one of the channels between Cape Negrais and Landfall Island, and then proceed for her port, making the land to the Northward of it before February, and to the Southward after this month.

In the same season, a vessel going to the Strait of Malacca, should sight the Southern extremity of Junkseylon. If for the Nicobar Islands or to Acheen, she should steer direct for the port of destination.

On leaving the bar of Rangoon for ports on the Gulf of Bengal

during the S.W. monsoon, a vessel should keep her wind in standing out to sea, whether for Bengal or a port on the Coromandel coast, Acheen or the Strait of Malacca. She should not discharge her pilot until she is well out to sea, with Elephant Point to the Northward. When it bears N.b.W. in 4½ fathoms, she will be about mid-channel. From thence standing out to sea, the soundings will decrease to 4 fathoms, and she should tack and stand in for the land to 5½ fathoms. She would then tack again, and by increasing her depth ascertain that she is approaching the shoals which lie off the coast.

When she has brought the wood of China-Bucker to bear W.b.S., she would tack out to sea. It will however be advantageous to keep near the coast, in order to anchor if requisite, and to profit by the tides, which are very strong. When she has a depth of 5 fathoms, the wood of China-Bucker should bear W.b.N. distant twelve or fifteen miles. If the night comes on before getting off China-Bucker, she may drift with the tide to windward, keeping her lead constantly going. After the River Dalla is passed, she should not approach the coast nearer than in 6½ or 7 fathoms, as far as Baragu Point, which is indicated by the bottom of sand and shells. If the vessel sails well she may continue her course Westward, passing between the Cocos Islands and Preparis, or through the channel North of Preparis, from whence, if she is bound to Bengal, she should make for the harbour of Balassore, provided the wind only varies from S.W. to S.S.W., otherwise she should tack, in order to profit by the change of wind that she may make her Westing.

If bound to Pondicherry or Madras during the S.W. monsoon, she will find great difficulty in crossing the gulf after leaving the coast of Pegu, and vessels which are not good sailers should perhaps not attempt it. It will be better, with such vessels, to follow the same route as that taken from Rangoon to Acheen, thus, after profiting by the tides, to proceed West, from Point Baragu, when bound for Madras, Pondicherry, or any port on the Coromandel coast, Acheen, or the Strait of Malacca, the vessel should keep out to sea if the wind becomes Westerly, and should endeavour to sight the island of Narcondam. If she is going South, some boards should be made, in order to keep the islands situated near the coast of Tenasserim at a respectable distance, although there are several safe channels through them. If she is going to the Strait of Malacca, after she has passed the South point of Junkseylon, she should make direct for Prince of Wales Island. If bound for Acheen, she should if possible get to the Westward, towards the islands of Nicobar, or else keep the Southern tack till she reaches the coast of Pedir, (North coast of Sumatra,) where she will find the current running West, which will be favourable for reaching the harbour of Acheen.

(To be continued.)

On the Changes in the Deviations of Iron Ships' Compasses,—*arising from the distribution of Magnetism when Building, and its varying nature after Launching.*

(Concluded from page 572.)

The concluding paragraph in the paper on the "Compass Deviations in Ships," given in the last number of the *Nautical Magazine*, referred to the labours of the Liverpool Compass Committee, and their forthcoming Reports:—the recent publication of the First and Second Reports of that body to the Board of Trade, (to be presented to both Houses of Parliament by command of her Majesty,) enables the observations relative to the theory of the magnetism of ships to be extended, not only in confirming what has been already advanced, but in giving some more general views of its character and distribution, particularly in iron-built ships; and in treating this subject, which it is proposed to do by as brief and popular a condensation as the matter will admit of, we shall hope to engage the further attention of those interested in this important inquiry.

It may here be observed that the Compass Committee Reports are furnished with numerous diagrams in support of the views advanced. It would be manifestly inconvenient to transcribe these valuable illustrations, which are indeed a study in themselves, and in many cases require for a thorough appreciation of their merits, an amount of preparatory knowledge which the general inquirer cannot be supposed to have acquired.

Not the least interesting feature in these Reports, is the facts of the researches of the various authorities already quoted, and of their exposition of the laws of magnetic action on ship-board having received ample confirmation from the various observations collected and experiments undertaken by the Committee. In the opening page of the second Report they observe, that it has been "proved, too, most decisively, that the deviations of the compass on board iron ships, when properly ascertained, are not of that irregular and erratic character which many cards of deviation might lead one to suppose, but that they accord most closely with the deductions of theory and experiment, as exemplified in the works of the Astronomer Royal and Mr. Archibald Smith." And again at page 24, in alluding to certain fluctuations in the amount and direction of a ship's induced magnetism,—"These fluctuations do not appear, however, to affect *practically* an authoritative statement which has already been supported by the Committee, and which, as it forms the key to the correction and calculation of compass deviations cannot be too earnestly repeated;—namely, that a ship's magnetism for any given place may be very closely represented by a permanent polar magnetic force in combination with a quadrantal force, or one changing its deviation in each quadrant as a ship is swung round."

As the present paper will be confined chiefly to the distribution and changes of magnetism in iron-built ships, it is necessary to explain

that the deductions given in the Reports are obtained from investigations principally made in England on ships during the progress of their building, launching, and fitting, as also on refitting after a return voyage, and that the conclusions to be derived from evidence obtained at sea will be given in a final Report.

Among the various philosophers, who, during the present half century,—a period noted for the progress of theoretical and experimental research,—have grappled with the perplexing and it may be said uninviting science of magnetism, none have more perseveringly worked for practical ends than the late Rev. Dr. Scoresby, and to him is due the enunciation of the notable facts, that the distribution of magnetism in an iron ship depends on the direction of the keel and head while building with reference to the magnetic meridian; and that this original magnetism is subject to great changes after launching, and also from other extraneous causes.*

Keen to the end for the promotion of his favourite science, this ancient mariner and venerable pastor,—for he had combined both these relations of life,—no later than the past year, and at an advanced age, undertook the fatigue of an antipodal voyage in the iron ship ***Royal Charter***, to investigate the changes in the magnetic condition of that vessel in the Southern hemisphere. He did not long survive his return to England, and it is understood that the results of the observations collected during the voyage will shortly appear from under the able editorial superintendence of one of our principal authorities in magnetic science. These circumstances have been somewhat amply detailed, as but little reference to, and few deductions from this source of information are given in the Reports.

The confirmation of Dr. Scoresby's views will be seen from the following extract, as also from subsequent description. "The records

* *Magnetical Investigations, by the Rev. Wm. Scoresby, D.D.*, vol. ii., 1852, pp. 330—343. The following from among the results of his investigations, as bearing on the subject, are worthy of extract.

"1. That ships built of iron, in place of timber and plank, obtain necessarily *an extremely high degree* of magnetic development from the elaborate system of percussive action, as well as from the bending of the plates and bars, during the progress of their construction."

"2. That the dominant magnetism thus developed is of the *retentive quality*, a quality remaining whilst terrestrially sustained by consistency of position, and otherwise, also, in relations inaccordant with terrestrial influence, whilst the ship remains free from mechanical violence or other magnetically disturbing force."

"3. That in each iron ship there is a special individuality of the magnetic distribution, depending *essentially* on the position—characterised by the direction of the keel and head—whilst building, and *peculiarly* on the deviations from uniformity in the placing of occasional heavy masses of iron."

"4. That, after being launched, percussion, vibration, or the straining of the general frame of iron-built ships, must *tend* to equalize the relations of the ship's magnetisms with those of the earth; and that the state of equalization, or approximation thereto, will be hastened and advanced, accordingly as the quantity or intensity of mechanical violence is increased, and accordingly as the ship's head is kept pretty steadily in the same direction."

of the Committee no longer allow a doubt as to the connexion which exists between the direction of a ship's original magnetism and her position when upon the building ship. In all the ships which have been examined, the north end of the compass needle invariably deviated towards that part of the ship which was farthest from the North while she was building, if the compass was placed in a central position, and free from the influence of individual masses of iron."

The Reports also further proceed to show that the characteristic features of the original magnetism of an iron ship, by which is meant the magnetism dependent on her direction when building, and the effect on a compass when she is swung, presuming that the needle is not influenced by iron bulk-heads, or proximity to the stern-post, rudder-head, or other masses of vertical iron controlling the magnetism of the hull of the ship, is as follows:—

In an iron ship built with her head to the North, or nearly so, there is no apparent attraction of the needle toward either side while she lies in a North or South direction: but with her head in all other directions there is a strong attraction towards the stern.

With ships built head to the South, the same principle will apply, the deviation being then towards the bow.

When built with the head to the East, the deviation is towards the starboard side, (the South in building) and when built with the head to the West, to the port side, (the South in building): [this deviation must be considered as only due to a differential action, for if a compass be placed near the top sides of such ships either internally or externally, the north end of the needle (in North magnetic latitudes) is attracted; one side however attracts the needle more strongly than the other, and that is the side which was furthest from the North when the ship was building, as above stated.] In these vessels if placed in an East or West direction, the north end of the needle will tend to the bow or stern respectively according to the direction in which lies the greater mass of iron.

In ships built in intermediate positions the preceding characteristics are combined; thus, if built with head to the N.E., the attraction will be aft and to starboard; with the head to the N.W., aft and to port. If the head be S.E. or S.W., the attraction will be forward and to starboard, or forward and to port respectively.

The amount of original magnetism appears to have relation to the size of the vessel, or the quantity of iron used in her construction, and is thus illustrated:—"In a ship of 400 tons, built head to East, if a compass be carried fore and aft on the middle line, about three or four feet from the deck, the deviation may be 10° or 12° when her head is North or South. In a ship of 1,000 tons it may under the same conditions be 25° or 30°, or more, depending to some extent on the breadth of the ship."

We have now arrived at an important feature of the inquiry;—the alteration in the ship's magnetism after launching,—and which would still appear to require an extended series of experiments to elicit some more precise information. Numerous examples are given by the

Committee, but derived more from information communicated than from direct experiment; still there is a notable example deduced from the latter, in the case of the ship *Royal Charter*, which will be hereafter alluded to. Subjoined are the conclusions arrived at.

"This original magnetism of an iron ship is frequently very permanent as regards direction, but is believed to undergo rapid changes in its amount, both in reality and in its apparent effect on the compass: the most striking change being at and immediately after launching, and during the first voyage. It is usually more evident in a steamer than in a sailing vessel. There are cases in which the deviations in a steamer have changed so much as two points in the first two days at sea, while afterwards the change has not been more than 3° in as many months. In new sailing ships the change is generally, but not always, more gradual, and extends over a longer period. A change of 10° to 15° is not infrequent."

"Under some circumstances considerably more than one half of a ship's original magnetism, or rather that part of it which affects the compass, may be lost, or may become balanced in the course of a year."

"After this early reduction of a ship's magnetism has taken place, the remaining portion, as far as may be judged from examinations made in the same place, and under the same circumstances, appears to be comparatively permanent."

In confirmation of this comparatively permanent condition of a ship's magnetism the Reports give a striking example, and it may be permitted to the writer of this article—who has had the opportunity of inspecting the Deviation Tables of most of the iron vessels in H.M. Navy, extending over many years' observations—to state that from this evidence also, the permanent condition appears to be the rule. The example alluded to by the Committee is that of the *Great Britain*.

"This extraordinary ship has been stranded, and strained, and altered; has traversed both hemispheres, and been very many years in active service: yet her lines of no deviation are now much the same as Dr. Scoresby would indicate them to have been when she was upon the stocks." [Illustrations are here given of the lines as taken in a graving dock, January, 1856; again in December, 1856, after being for some weeks head N.N.E. in the same graving dock: as they appeared two days after with her head in the opposite direction, and again as determined twice in January, 1857, after undergoing constant hammering in almost every part for forty-three days.] "Yet how small is the change! a proof, apparently, that no circumstances can permanently *conceal* or greatly alter the direction of an iron ship's original magnetism."

The most instructive case of the rapid changes of magnetism in a newly built iron ship is that of the *Royal Charter*, which can be well exemplified by a comparison of the values of the five co-efficients alluded to in the former paper; the results being selected from an extended series of observations, as made with an Admiralty Standard compass specially placed in aid of the experiments.

	A	B	C	D	E
	° ′	° ′	° ′	° ′	° ′
At Liverpool in Jan., 1856, previous to going on first voyage.	—0 27,	—3 48,	—19 42,	+6 59,	—0 52
At Melbourne, in Australia, May, 1856	—1 27,	—1 11,	— 8 59,	+6 23,	—0 16
At Liverpool on return, in August, 1856	—0 3,	—1 6,	— 3 22,	+6 10,	+0 56

We see here very distinctly the permanency of the quadrantal deviation as represented principally by the co-efficient D; and the gradual diminution of the subpermanent magnetism, or polar-magnet-deviation, in the co-efficients B and C.

Subsequent experiments in the *Royal Charter* indicate that the subpermanent magnetism is approximating to its original amount, but as some alterations have been made in the ship's fitments the comparisons are not strictly identical,—they are nevertheless well worthy of attention.

	A	B	C	D	E
	° ′	° ′	° ′	° ′	° ′
Liverpool in September, 1856, after alterations	—0 19,	+1 13,	— 8 33,	+6 0,	—0 19
Liverpool in October, 1856	—0 9,	—4 55,	—14 0,	+6 41,	—0 9

Enough has now been advanced to show the valuable nature of the investigations under review, but on the subject of the changes of original magnetism in newly launched iron ships there appears to be ample scope for further inquiry, both as to the possibility of there being some regular law of change, as also as to the probable time required for the development of its final permanency of character. The alarming change alluded to in the Reports and already quoted, of "cases in which the deviations in a steamer have changed so much as two points in the two first days at sea, while afterwards the change has not been more than 3° in as many months," is from its amount and irregularity sufficient to embarrass the most careful navigator; it is certainly to be hoped that the cases on which the statement is based are exceptional, and arising from the injudicious selection of a position for the compass (probably from close proximity to some ponderous mass, especially of vertical iron). We are certainly disposed for the present to view them in this light from a consideration of the results obtained in the *Royal Charter*.

In addition to the general inquiry and deductions relating to the magnetism of ships, the Committee have discussed the following practical topics:—

Errors arising from the heeling of iron ships;
Elevated, or mast compasses;
Modes of swinging ships;
Modes of adjusting compasses;
Projection of deviation tables by curves; and
Miscellaneous operations, such as the distribution of circulars conveying information, the examination as far as possible of all new

inventions relating to the mariner's compass and compass management, and other matters, to be noticed in a final Report.

It is proposed in a subsequent paper to refer to some of the foregoing subjects, but the present may not be inappropriately closed by referring to examples of the remarkable want of caution on the part of iron ship constructors and those engaged in their equipment, evinced in the injudicious arrangements for the compasses. Among the instances quoted will be found the following, "the error in the first position of the binnacle was 101°. As the ship was going to the East Indies, the compass adjuster objected to compensate so large an amount, and the binnacle was then placed three feet forward; here the error was reduced to 2 points. In another and much larger ship the compass in the first position of the binnacle deviated 14 points; on moving it a little further forward, the error was reduced to 2½ points." These cases occurred when the original position was selected near the rudder head of iron vessels in which a strong attraction existed towards the stern.

It must be evident that under such circumstances of position, no compass, whether compensated or otherwise, can possibly act faithfully, nor can any accurate theoretical deductions be made from such examples; nor above all need we be surprised at the serious consequences which too frequently result from dependence being placed on these marvellous mal-arrangements. Wisely, therefore, have the Committee acted in the promulgation of a circular calling attention to these facts, and expressing their opinion that by attention to the circumstances under which a ship is built, and care in selecting a suitable position for the binnacle, the original error of the compass may be reduced within small limits.

A Voyage to the West Indies, *with Notes on St. Lucia.—By C. R. Maclean.*

(Concluded from page 473).

Various causes are mentioned as producing currents around St. Lucia, but, be they what they may, their existence is certain and their direction and velocity are very irregular. From the best information I have been able to obtain, and from my own observations on them, their general direction when setting to leeward is from N.W. to W.N.W., and their mean velocity about two knots per hour in shore. This direction, however, is much modified by the configuration of the island, and the current is accelerated or retarded according to position. I have generally found the current to leeward strongest in the channel between St. Lucia and St. Vincent, where it runs at the rate of three knots per hour.

The configuration of the coast of St. Lucia somewhat resembles an isosceles triangle; the two sides being in a N.N.E. and S.S.E. direction, and its base E.S.E. and W.N.W. As it may be presumed that the great Atlantic current flowing to the N.W., increased by the waters of the Orinoco, encountering the barrier formed by these islands becomes accelerated in the channels, no vessel should lay by when running for St. Lucia and overtaken by night, but should rather try to windward till daylight. The brig *Jane*, of Glasgow, while lying to was carried through the channel between Martinique aud St. Lucia in the night, and was out of sight of the island at daylight, having in ten hours drifted forty miles to the N.W. She was ten days in getting back to it. On the South side, however, between the point of the Grand Pitton and Mola Chica, I have found the current close in shore (and sometimes, I am told, it is also in the offing) setting with some force to the N.E., which is of great advantage in getting up to Vieuxfort from Soufrere.

The native fishermen say there are periodical changes in the currents that observe great regularity, and of which they avail themselves to catch fish, always going out when the current sets to windward. It has been remarked by the Masters of inter-colonial vessels that the currents are feebler in the channels and neighbourhood of the islands to the northward of St. Lucia, and strongest to the southward; so that the small vessels when bound up for Barbados from Grenada, St. Vincent, or St. Lucia steer well to the northward to effect the passage to Barbados.

We found while lying in the Bay of Soufrere, particularly after a day or two of blowing weather, a strong current during the morning sweeping across the bay, and in the afternoon a reaction of the waters setting back in the opposite direction, no doubt these being the eddies of the great lee current setting through the channel North and South of the island.

On the 4th of April, the weather having considerably cleared up and the wind moderated, we availed ourselves of these peculiarities and, with additional weight on board in sugars, again started with the *Gilbert Munro* for Vieuxfort. After rounding the point of the Great Pitton, which, as I have already observed, is the S.W. extremity of the island, we found when close in shore a slight set of current to the S.S.E. The direction of the coast from this point to the Mola Chica is E.S.E. and W.N.W., so that we were enabled to make tolerably good way. When working up on this occasion, I stood off shore with the view to ascertain the distance from the shore of this easterly current. We found it close in with the shore. It was of very limited extent, for at the distance of a league in the offing a strong lee current was found running, which compelled us to make short tacks, keeping the coast on board within a distance of two miles.

Between Vieuxfort and Soufrere on this side of St. Lucia are first the little bay of Anse Irroine, the village of Choiseul, and nearer to Vieuxfort is Laborie. The coast from the village of Choiseul to the eastward is clear of danger and bold up to Balambouche, off which is

a dangerous reef extending a full mile from the shore,—on which reef at times the sea breaks heavily. The Balambouche reef is about midway between the point of the Great Pitton and Mola Chica Point, and three miles westward of the village and bay of Laborie, being particularly dangerous to vessels when working to windward on this coast in the night and with a smooth sea, when the breakers do not show themselves to mark its position. One or two vessels of the island have been lost on this dangerous reef. Between it and the shore there is a passage for boats, but in heavy weather even this is not practicable. In running down along the shore, keeping the Pitton Point open will clear the Balambouche Reef; and in working to windward when abreast of the reef it is advisable to tack when this point is on with the land to the eastward of it. The water, too, shoals rapidly when approaching this reef; but the lead is a good and safe guide for its vicinity either by night or by day.

The current on this side of the island often sets so strongly to leeward that the smartest schooners are unable to work up against it, and it becomes of great importance to find anchorage to wait a lull in the current or a slant of wind that will enable a vessel to make head against it. It may not, therefore, be unimportant to observe here that to leeward of the Balambouche is the River Doree, off which a ship may anchor in five or six fathoms, sandy bottom, to hold her own until a favourable change offers. Anchored in the above depth she will be a short half mile from the shore. But the best and smoothest anchorage under such circumstances will be found off the village of Choiseul, in seven fathoms, abreast of the little Catholic church that stands on the beach; in which depth a vessel will be a quarter of a mile from the shore. Wood and water may be obtained here in case of need; and with the aid and well known kindness of Mr. Beausoleif, the principal proprietor in this quarter, and his hospitality, other supplies will be obtained.

St. Lucia seen on this side presents a more cheering aspect than that which it generally presents when viewed from the sea. A fine plateau gently sloping to the seaboard in apparently a high state of cultivation is a pleasing relief to the deep sombre impenetrable forest with which it is almost everywhere else eternally clad.

Having passed by Choiseul, River Doree, and Balambouche, we come to the town or rather village that bears the name of St. Lucia's greatest benefactor Laborie, the French General under whose administration the public roads were traced and made. The mountainous character of the island renders them at once an enduring memorial of skill and perseverance that never can be surpassed.

To a stranger the villages on the sea coast present so wretched and dilapidated an appearance that such dwellings can hardly be dignified with the name of houses. And many of their owners, poor white people, since the emancipation of the negroes have been thrown on their own resources. One or two negroes constituted all the property of one of those white inhabitants, and from their labour they derived a maintenance; but now too old or too proud to work themselves, they

have sunk into a pitiful miserable condition far below that whi ch familiarly known in Barbados as the "red shank." The village of Laborie is thus remarkable for nothing but the indolence and pride of the villagers and presents a degrading contrast to the enterprising, enlightened, and gallant officer by whose name it is distinguished.

There is no anchorage in the bight of Laborie for square-rigged vessels, the ground being foul and studded with many reefs. To the East of the village small coasting schooners however find anchorage within the reefs in smooth water close in shore.

At the distance of a league E.S.E. from the village of Laborie is the fine capacious bay of Vieuxfort, which, perhaps without exception, is the finest in the Carribbean Islands. The Mola Chica Point, which forms the southern part of the shore is well wooded, and in the northern part of it a fine stream of water falls into the bay. It is about a mile deep and is sheltered from the S.S.E. round to N.W. Vessels may anchor here in smooth water, on a fine sandy bottom, in from three to seven fathoms, the latter depth being about half a mile from the beach. About fifty yards from shore, on the N.E. side of the bay and nearly abreast of the river is a small coral reef, nearly awash, the outer edge of which is steep, but within it and the shore there is scarcely depth of water for a boat.

The plain of Vieuxfort which is of considerable extent contains at present ten sugar estates. The town is mean and insignificant, with a scanty and indolent population who seem to have a particular aversion to agricultural labour, their principal occupation being confined to catching a few fish in the mornings, sleeping and lounging through the rest of the day.

For several years after the emancipation, owing to the crippled condition of the proprietors, this fine plain had been rapidly sinking into an uncultivated waste, something like what we have witnessed in the valley of Roseau. Within this last year or two, however, through the enterprise of Mr. John Goodman, who had purchased a fine estate then nearly abandoned, cultivation has been increased and the quarter now wears a reanimated appearance. The St. Aubain estate, that had been totally abandoned, has also changed hands, and is now flourishing under the industrious management of Mr. Delaporte, its present owner. The evil consequences of the want of labour are perhaps more evident in this quarter than in any other part of the colony, the enterprise of individuals and the capabilities of the ground being sadly crippled by this deficiency.

Vieuxfort, as we have said, is situated at the southern extremity of the island and appears to have been a fortress of some importance in former times, giving as it has done, its name to that quarter of it. Long ago, however, it must have been abandoned, and before it fell into the hands of the English. The fort is now dismantled and in ruins, overgrown with thick shrubbery and brushwood; the guns, of which some half dozen yet remain, are honeycombed by long exposure to the weather, and its original extent can now hardly be traced. The position of the fort appears to have been well chosen, covering the

town as it does, and the whole extent of the bay, whilst commanding a view of all that could pass through the channel of St. Lucia and St. Vincent.

This bay, as before observed, is certainly the best in the Windward Islands, and capable of affording good and safe anchorage for a hundred sail. The hurricane of 1831 that desolated Barbados, swept with tremendous effect over the South side of St. Lucia and it was severely felt in Vieuxfort Bay. Two ships, the *Cuba*, of Glasgow, and the barque *Sandwich*, of London,—to which I belonged, were at anchor in the bay. At four o'clock in the morning of a day in August, that had been preceeded by a still and beautiful starlight night, the sky became overcast and the wind increased in fitful gusts from North to N.N.E. These were the only warnings of the dreadful hurricane that followed. At six in the morning daylight made its usual appearance, but on this memorable occasion no signs of approaching day appeared! A dark impenetrable pall of clouds was spread over the face of the heavens as if day had for ever been blotted out, and hollow rumbling sounds were heard in the distance, as if nature were struggling in some great effort. On board the *Sandwich* we began to feel the approach of some awful visitation: we were all strangers to it, for none of us—not the oldest man on board—had ever known a hurricane, or could have imagined the terrible fury of that tempest that was so soon to burst upon us.

At seven in the morning the light of day was distinguished by a leaden sickly hue overhead, the wind blowing with increasing violence and in fearful gusts. The second anchor had been let go and cable veered to ninety fathoms. The lightning flashed and the thunder pealed heavily, and by eight a.m. the hurricane had nearly attained its height. The ship *Cuba*, which had completed her loading the evening before, was now last seen, on her beam ends, her sails blowing away in ribands through the gaskets, and driving out to sea. At half past eight so furious was the hurricane men could not face the wind and draw breath.

Our ship about this time was thrown nearly on her broadside, when all three masts went by the board! When the hull swung to her anchors head to wind, after clearing and cutting away the wreck of the masts from alongside, we battened down the hatches, for we found that to all appearance she was driving to sea; but nothing more could be done, both cables being out to their latter end. Tremendous were the seas now breaking over our wreck, while all hands committed themselves to Him who alone can save in such extremity, and were ordered below. But happily the storm was not of long duration, for at two p.m. it abated, and we found our position to be three leagues from St. Lucia, or nearly midway between it and St. Vincent.

The communication with the capital is kept up by a novel and to a stranger, should it be under other than Negro management, a somewhat perilous craft called by the islanders a "pirogue." One of these craft generally starts for Castries on Mondays and Fridays, returning the following day. The pirogue is nothing more than a large canoe,

about thirty feet long. A log of wood of that length hollowed out represents the bottom of this vessel, and an inch board mounted in the frailest manner upon it comprises the top sides. With five hands for the oars and the patron or coxswain, the traveller departs and makes his way along the coast to Soufrere or Castries, the fare from Vieuxfort to the latter, freight and all, being five dollars, or twenty shillings sterling. A single passenger pays one dollar. The danger of the voyage from Vieuxfort to Castries or back again is increased by the pertinacity with which the boatmen cling to the shore. So close do they keep to it that the oars on the inshore side most of the time are dabbling in the surf and scraping the rocks, while the passenger who is unaccustomed to the fragile craft is constantly expecting and wondering every moment what prevents her from being thrown by the surge high and dry upon the rocks. Then, again, to a stranger the sailing part of the voyage is still more trying, for when under sail they give the shore a good berth, keeping well outside of all the reefs, and under two huge sprit sails, with the boat's crew suspended from the masts as ballast, they stand out to sea for the passage. Any one may fancy the stability of a round log of wood upon the water. The only difference from it in the pirogue is that she is hollowed out, and has the sides risen on. Under such management she does not sail upon her bottom, but is rather constantly lying over on her broadside. To prevent this and to keep her upright, the men lean themselves over to windward and, holding on to ropes attached to the head of the mast, prevent the boat from filling. When the heeling over is lessened by any lull in the wind, it is allowed for by the men righting themselves and throwing their bodies more in the centre of the boat.

In this uncomfortable and primitive mode of sailing, these craft skim like a sea bird over the surface of the water with great velocity, and such is the skill and adroitness with which the Negroes manage these rude looking craft that an accident seldom or never occurs, and the inhabitants from mere habit travel by them with entire confidence. It requires about four hours under sail or five hours hard rowing to make the trip from Vieuxfort to Castries, and during the daytime the heat and cramped accommodation in these rickety craft renders the voyage anything but agreeable.

The windward bays of the island, from their exposure to the surges of the Atlantic, have no other communication by water with Castries than that afforded by the periodical visits of droghers during crop time. The journey from those parts of the island has to be performed by land, and to a stranger is no less interesting and exciting than by water. The high road round to windward of the island, called the "trace" or mountain track, for romantic and beautiful scenery could hardly be surpassed. The trace is the only communication by land between the windward and leeward districts of the island. After heavy rains this road is so slippery and dangerous that were it not for the Creole horses of the island it would be impracticable. But with these sure-footed animals it is daily accomplished with ease and safety.

On traversing this mountain track the most enchanting and interest-

ing scenes are unfolded to the traveller. On reaching the summit of Morne Barabara, he looks down a depth of 2,000 feet over the rich and beautiful valley of Mabouya. From this height the eye follows the track as it winds beneath like a corkscrew, bounded on each side by tremendous, dark, impenetrable precipices, and so narrow that two persons cannot ride abreast; huge masses of rock projecting out on either hand and seeming to be merely held in their places by the roots of trees. The visitor involuntarily thrills at the prospect of descent from his perilous position, while to a spectator beneath both man and horse, in the operation, appear actually as if suspended in the air by some invisible agency.

The valley of Bamboos (properly Maleanag), at the foot of the Barabara, however, richly repays the visitor for the fatigues of the journey. Through its still and lonely bosom the little river Dennery for several miles follows its serpentine course towards the great Atlantic. For miles along the banks of this beautiful stream flourishes an evergreen plantation of bamboos. The clusters of this picturesque tree are thrown together in every variety of shape and form, and their leaves are so closely interwoven above as effectively to exclude the fierce rays of the sun; while the ground beneath, free from brushwood or any vegetation, and carpeted only with the yellow leaf, with space between the clusters of every size and shape, renders it most enchanting. The stillness and solitude of this delightful retreat is unbroken save by the occasional distant plaintive cooing of the wood-dove or the cheerful note of some little warbler of the grove; while the low gurgling murmur of the stream as it glides softly to the great ocean adds to its attraction and loveliness: constituting a very paradise for picnics—technically known as maroon parties.

In my passage from Soufrere to Vieuxfort I have omitted what seems to me a very important subject in connection with the past history of this island. St. Lucia, at the period of its discovery, like the other Antilles, was in possession of the Caribs, and the first attempt to colonise it is said to have been made in 1635 by the French. The Carib race have almost been extinguished in St. Lucia, and there are but one or two families now remaining at Point Carib of this old race. They have had the benefit of the civilization that has surrounded them, but, like the North American Indians, they have been gradually sinking under it, and the race will be soon extinct. It has been remarked of these aborigines at Point Carib that no Magistrate was ever known to have had a complaint brought from their settlement, nor a question for judicial adjustment. Strange it may be that, notwithstanding they are said by all to lead an exemplary, temperate, industrious, and frugal life, the race is gradually falling away, not from amalgamating with the Negro or colonial races around them, for with these they have never mixed in marriage, but by a gradual dying off of the tribe.

While we lay in Vieufort Bay we were abundantly supplied with fish of excellent quality,—such as king-fish, barracouta, jacks, and plenty of small fry. This bay is also famous for its turtle, which at

times, and in the proper season may be had in any quantity. Nearly all the fruits of the West Indies are to be had here, and many exotics grow to perfection. Cocoa-nuts, pine-apples, sappodilla, lemon, orange, lime, shaddock, guava, plantain, banana, tamarind, and bread-fruit all grow wild and in profusion, particularly in the quarter of Soufrere, which is justly famed for the abundance, delicacy, and variety of its fruits.

The island is covered, too, with forest trees of every size and of endless variety. All are indigenous to the soil, supply valuable materials for building, and some excellent specimens of fancy wood. Mahogany grows in great profusion; and in dye woods there is the fustic and log wood, many tons of the latter being annually exported.

Though these remarks on St. Lucia have been extended to a greater length than was originally intended, I cannot close them without a short notice of its peasantry or labouring population, on whom its present prosperity and future condition so much depend. It may not be saying too much to assert that in no British or foreign possession was the galling and soul-degrading yoke of slavery felt less burdensome or oppressive than it was in St. Lucia: hence the consequence of the attachment to old masters and localities has been of signal benefit to the proprietary body since the emancipation. Had this not been the case, —had not this attachment of the Negro to his old locality been strongly implanted in his breast, some of those masters would have been irretrievably ruined. I have no hesitation in making this assertion that as far as my observation and experience enables me to form an opinion of other islands in the West Indies, many of which I have visited, that of all the lately emancipated class, the St. Lucia Negro is the most tractable and best conducted that I have met with. It should occasion no surprise in a country where such scarcity of labour and want of competition prevails, and where the labourer's wants are few, and those few so easily supplied, that in the absence of all great stimulants to industry, the Negro is more or less indolent and somewhat unsteady in his industrious habits, and that his employer should occasionally suffer from his capriciousness. But I am pretty certain that no colony has suffered less than St. Lucia with the same paucity of labourers, from the transition of slavery to freedom.

The St. Lucia Negro may be said generally to be of an obedient, cheerful, and happy temperament; and if we may judge from the number of marriages since the emancipation, his moral condition has considerably improved; though, on the other hand, judging from his total disregard or ignorance of the obligation of an oath and his belief in and addiction to the practice of sorcery, a great want of education and religious instruction is indicated. "Kembois," in St. Lucia, is another name for the Obeah of the African, on which is engrafted other more modern diableries, and the practitioners of this imposture have enrolled themselves into a sort of society or brotherhood for the furtherance of their nefarious practices on the ignorant and superstitious part of the community.

The Negroes of St. Lucia seem remarkable for their love song of

and the dance. To gratify this propensity they have ranged themselves into two rival harmonic societies, distinguished by the name of the "Roses" and "Marguerites;" each party elect a King and Queen, by whom they are governed, and any gross misconduct is punished by expulsion from the society. It is particularly amusing at their assemblies to observe the manner in which Quashie endeavours to copy his master in finery and dress and his delicate attentions and gallantry to the ladies, who on their part strain every nerve to surpass their mistresses in acting the fine lady. The display of jewelry by the sable belles on these occasions would be somewhat unaccountable in their circumstances were it not known that every servant is decked out with her mistress's jewelry, who entertains a sort of pride and rivalry in adorning her maid for the nonce in the most stylish manner with dress and trinkets.

The Mico schools, as I have said, have been of great use to the colony in propagating the English language; but the principle on which it is inculcated is based on non-interference with religion. As Protestant institutions this is very considerate to the Romanist portion of the community which predominates in St. Lucia. The youth are launched out from these schools with a godless education, sufficient to make them vicious without any moral or religious impressions to control or direct them. It has been observed that the parents of children who have learned to read and write at these schools think it a degradation with such attainments for their children to perform field labour and to work with a hoe, all such work being associated in their ideas with slavery. Hence the sole aim and ambition of the parent is to have them taught some trade or handicraft, as tailors, shoemakers, tinkers, blacksmiths, or anything, in fact, in preference to the handling of a hoe, a feeling that if not eradicated must eventually be as ruinous to themselves as prejudicial to the interests and prosperity of the colony. For this reason it would appear to me, though I may possibly be mistaken, if religious instruction is to be excluded, that schools of industry, combined with education, would be more adapted to the wants of these colonies and to the rising generation, who are the immediate descendants of the emancipated Negro.

In 1850 and 1851 two cargoes of captured Africans were added to the labouring population of St. Lucia. The first importation, by the *Una*, of some 250, including males and females, were distributed to the different planters who had made application and provision for them in accordance with the terms of the ordinance, were a valuable boon to the colony; and had it been carried out to a greater extent, would have been of inestimable advantage to the resources of this fine country. These African emigrants, though industrious and eager to acquire money, though under the surrounding influence of civilization, could not shake off the wandering habits of their savage life; and as soon as the first contract to which they were bound expired, without any reason for so doing but the love of change, wandered away to other districts, in many instances to their own disadvantage. Some of them by saving their earnings made small purchases and set up

business as shopkeepers and itinerant traders. It is certain, however, that all of them have reason to be thankful for the happy change that has been effected in their destiny. A few European, Irish, French and German, emigrants were also introduced.

The fate of the first has been already recorded in the deadly valley of Roseau. That of the second, brought from France by M. Beance, was no less happy. But the Germans were more fortunate and successful, though not of the best selection that could have been made for agricultural labour. Having been picked up in the streets of London, they nevertheless, under the paternal care and solicitude of Mr. Henry King, by whom they were engaged, and the kind attention and care of his lady to the comforts of their families, combined with the healthy situation of Belle Plain estate, in the quarter of Soufrere, these succeeded well for the time. But their residence (in all probability) in London had engendered habits that unfitted them to be long satisfied with the quiet seclusion of a retired country life. After amassing a little money, they longed for the opportunity of spending it in amusements not to be found in St. Lucia, and the allurements held out by the gaiety of St. Pierre, Martinique, seduced the majority of them over to that island, from whence, I believe, after spending all their money, Martinique being then a slave holding colony, and becoming paupers, the French Government expelled them from the colony by shipping them off to France, and these men returned to Europe as poor and wretched as when they left it.

Mr. John Goodman, of the Union Vale estate, followed in the steps of Messrs. Bence and King, by introducing a more suitable class of labourers to St. Lucia from the teeming population of Barbados. Though St. Lucia is only twenty-six leagues from Barbados, it is found difficult to get the natives to leave their "little England," all the other colonies being by them considered as "the West Indies." The Barbadians appear also to have an additional objection of emigrating to St. Lucia, from their considering it a French as well as a Catholic country, all of them being stanch Protestants in religious opinions, and with strong English feelings and prejudices.

Unfortunately St. Lucia is infested with many venomous reptiles and insects. Of the first, the most dangerous is the rattail serpent, a species peculiar to it and Martinique, and it is a remarkable feature in the natural history of these islands, that Martinique, only separated on the one hand by a narrow channel from Dominique, while St. Lucia on the other is equally close to St. Vincent, these venemous serpents are only found to exist in these two contiguous islands (Martinique and St. Lucia). I was told that a gentleman had made the experiment of introducing the rattail serpent of St. Lucia into St. Vincent, but failed; they all soon perished on reaching that more favoured land. The rattail is found from six to eight feet in length, the extremity of the body terminating in a tail similar to that of a rat, from whence it derives the name. They multiply amazingly, the females bringing forth from thirty to forty at a birth, and thus every part of the island

is more or less exposed to this enemy of the human race. Their bite, though often successfully treated, is many times fatal, and some ten or a dozen individuals in the island annually fall victims to this dreadful foe. The fangs of this serpent are hollow tubes, hinged to the under jaw, one on either side, from one to two inches long, and about the size of a darning needle. In the largest sized serpent they lie flat in a receptical or groove in the jaw, and at the root of the fang is a little bag containing the poison. When the reptile is roused to anger, and intent on mischief, these teeth are erected, and in the act of biting the poison is injected through the fang into the wound. The immediate effect of it being to congeal the blood. Much depends on the size of the serpent and the part bitten and in the treatment for the recovery of the person; should a vein or artery be punctured, the case is almost hopeless, often in a few hours terminating fatally, death ensuing with great agony to the sufferer.

Among the African emigrants that came to St. Lucia, there were some who professed to cure the bite of the serpent. These serpent doctors certainly possessed a secret by which they seemed to have a perfect control over these creatures. They would catch them alive and handle them with impunity while carrying them about for exhibition, and hence obtained the name of serpent charmers. They are observed, before handling the serpent, to anoint themselves with some preparation of herbs, that seemed to have the effect of stupefying the reptile. I saw a soldier of an African regiment who was a serpent charmer also, exhibiting two very large rattail serpents. On taking them out of his bag to put them on the ground, the serpents seemed to have lost all animation, appearing as if quite in a state of exhaustion. But in a few minutes one began to erect its head and look wickedly round, to the great consternation of the spectators. But the soldier was eyeing him closely all the time. Soon, however, as he observed the serpent fully alive and bent on mischief, he immediately subdued him by putting his stick to the reptile's nose, by which its animation was instantly subdued, and drooping its head it became motionless. Although nothing could be seen on the stick, there must have been some potent drug to have produced this effect. He afterwards took the serpent up, coiled it round his body, and after satisfying his visitors with his extraordinary powers, put the serpents into the bag from which he had taken them.

We have reason, however, to know, from a fatal occurrence in St Lucia, that the serpent charmer's curative powers for the bite of the reptile, are not equal to the temerity with which he handles it. There appears to be some superstition attached to the knowledge possessed by the serpent charmers, as large rewards, I am told, have been offered to these Africans to explain the means adopted for overpowering the serpent, but without avail. By some means, however, a young Creole had so ingratiated himself into the friendship of one of these Africans, that he agreed to initiate him into the mystery. But, unfortunately, in the course of his instruction, this young man was bitten by a very

large serpent while handling it, and, notwithstanding this happened in the presence of his preceptor, who treated the matter lightly, saying, he would cure him immediately, the unfortunate young man died in a few hours after he was bitten.

It is to be presumed that after all there is very little mystery in the serpent charmer's craft beyond the knowledge of the preparation employed for stupifying it, and the necessary degree of prostration required to keep it harmless.

There are other species of the snake family in St. Lucia less venomous or harmless, such as the tête chien or boa constrictor, the cuirass, and crebo or black snake. This reptile, though much smaller than the venomous rattail, is his greatest enemy; in their encounters, the crebo is always the assailant, and when wounded in the fight the crebo is seen to counteract the venomous bite of his adversary by rolling itself on the leaves of a plant called the pied poule, which grows abundantly in almost every part of the island. After this application to his wounds, he returns again with new vigour to the combat, and will eventually overpower his larger antagonist. The crebo then gorges his prey, sucking in as much as is required for his daily consumption, and thus feeds on his conquest for several days. In the Government Office, to which a sort of museum is attached, there is a curious specimen in illustration of this process preserved for inspection. A crebo is seen with half of a rattail serpent protruding from his jaws. The remainder he had swallowed, and was killed by mistake for a rattailed serpent, the half of the latter that protruded from his jaws only having been seen by the party who destroyed it, as it is needless to say the crebo, being harmless, his life is respected for his services in destroying the venomous rattail.

Strange to say, serpents have often found their way on board ship while lying in the harbour of Castries. A rattail serpent, four feet long, was killed on board the *Susan King*, though the vessel was lying out in the middle of the harbour, and had never been alongside or near the quay. It was found asleep coiled up, very like a piece of rope, on the covering board of the quarter deck, and was soon despatched. It was supposed to have found its way alongside in the ship's boat, the latter having been on shore at a late hour the previous night. The boat had been probably fastened alongside a canoe laden with guinea grass, as it a very common thing to find serpents when unloading these boats at the wharf.

Another instance of the serpent's predilection for the sea, came under my notice when the *Gilbert Munro* lay in the harbour of Castries. One morning a part of the crew that were employed in clearing the forecastle deck, over which a platform or barricade had been made for coiling warps and spare cordage, were startled by the appearance of an enormous serpent erecting his head, darting out his tongue, and hissing at its disturbers, from the tier of a caiar hawser in which its body was coiled up, and from which it did not appear at all inclined to remove. The enormous size of this serpent caused a great deal of

consternation among our sailors, some of them taking to the rigging, others, more courageous, armed with handspikes and crowbars, attacked and, after a long struggle, succeeded in despatching this unwelcome visitor. It proved to be a tête chien or boa constrictor,* and measured eight feet nine inches long, and the body was of the thickness of a man's leg. How or by what means this huge reptile found its way on board, or what inducement it had to come, no one could conjecture, but we concluded that it had swam off and got on board by coming up the chain cable, and introducing itself through the hawse pipe. [The same has been known to have occurred in the East Indies.—ED.]

The most dangerous insects are the black scorpion, the centipede, and tarantula spider; the most destructive is the wood ant, and the most annoying are the mosquito, the bête rouge, and the chigo. The depredations of the wood ant extend to every article of furniture, any thing made of wood, and the rapidity of the havoc committed by them is almost incredible. In the course of a night the bottom of a trunk will be devoured by them, and the contents, if books or clothes, entirely destroyed. The chigo gets into our toes, deposits its eggs and hatches a young family. The bête rouge, an insect almost invisible to the naked eye, buries itself in our skin, and produces irritation all over the body, and not unfrequently many little ulcers. At night, in the rainy season, clouds of mosquitos hover about and around ready to eat one up. Every bush and tree is illuminated by the firefly, and all nature seems in these climes teeming with life. The humorous remarks in the *Edinburgh Review*, many years ago, on the insects of British Guiana, are equally applicable to St. Lucia in the present day. The author says,—"The bête rouge lays the foundation of a tremendous ulcer; in a moment you are covered with ticks; flies get into your mouth, into your eyes, and nose, you eat flies, drink flies, and breathe flies; lizards, cockroaches, and snakes get into your bed; ants eat up the books; scorpions sting you on the foot, every thing bites, stings, or bruises you every second of your life. An insect with eleven legs is swimming in your teacup, a nondescript with nine wings is struggling in your beer, or a caterpillar with several dozen eyes in its belly, is hastening over the bread and butter. All Nature is alive, and seems to be gathering her entomological hosts to eat you up as you are standing out of your coat, waistcoat, and breeches."

[In concluding these very interesting and useful papers on St. Lucia, reflecting as they do the highest credit on their Author and the Service to which he belongs, we would fain turn to similar accounts of the other islands near it. The French have not neglected Martinique, nor have we omitted Antigua, the directions for which have appeared in

* The boa constrictor that swallowed his blanket in the Gardens of the Zoological Society, Regent Park, was from St. Lucia.

these pages, from the pen of Capt. Barnett. But we look in vain at many another neighbouring island on the chart, and while we miss that delineation of their shores upon it that approaches at all to accuracy, we cannot help expressing our regret that even that is not compensated for as it now is in St. Lucia by these excellent papers. This little account of St. Lucia will be referred to by the future surveyor, the seaman, and the general reader hereafter for information and for amusement, and they will each find in it what they want. Would that we could see others with the observation of our author and his pen to describe it, busy on those islands as he has been on St. Lucia. Would they emulate his example in all respects, they might each add dignity to their profession, and prove, as he has done, an honour to the British Mercantile Marine.—Ed.]

The Destructive Agency of Lightning.—No. I.
Gunpowder Explosions by Lightning.

The following notices of the destruction by lightning of magazines of gunpowder and other buildings appropriated to the manufacture of this dangerous compound, furnish important practical lessons relative to the physical violence of the electrical discharge.

1537, *April 25th.*—Lightning fell on the tower of the celebrated old castle of Heidelberg, which had been converted into an arsenal and powder magazine. The electrical discharge found its way to the vaults containing the gunpowder, and the whole blew up with a terrific explosion,—only two walls of the castle were left standing. The adjacent town was strewed with stones and ruins, "the doors of the houses were lifted from their hinges, the windows hurled into the streets;" many of the inhabitants were killed by the huge stones and beams of the castle blown over upon the town.

1769, *August 18th.*—A magazine in the vaults of the church of St. Nazaire at Brescia, exploded by lightning.

This was a large depôt of gunpowder belonging to the republic of Venice. The electrical discharge struck the tower, and descending to the vaults set fire to nearly 300,000 pounds of gunpowder. More than 3,000 persons perished in consequence, and nearly one fourth of the beautiful city of Brescia was laid in ruins. The tower, shivered in a thousand pieces, fell upon the city in a shower of stones.

1780, *August 18th.*—Lightning fell on the magazine at Malaga, and exploded the gunpowder it then contained. The building was completely destroyed. Fortunately the greater part of the store had been removed, otherwise the whole city would probably have suffered.

1782, *March.*—Lightning fell on a magazine at Fort Marlborough in Sumatra, and set fire to 400 barrels of gunpowder.

1785, *May 4th.*—Lightning struck the magazine at Tangiers, exploded the gunpowder, and destroyed the surrounding houses.

1807, *June 26th*, at 11.30 a.m.—The electrical discharge fell upon and exploded the powder magazine of Luxembourg, formerly built by the Spaniards on a solid rock. It contained about twelve tons of gunpowder. Thirty persons were killed, 200 mutilated or seriously wounded, and the lower part of the town laid in ruins.

1808, *September 9th.*—A stroke of lightning assailed the magazine of Saint Andrea-del-Lido at Venice. The explosion destroyed a barrack and adjoining chapel, and occasioned much other damage.

1829, *November 19th.*—Lightning fell upon the citadel of Navarin, and blew up the powder magazine with all the walls and buildings in the enclosure. The huts composing the town all destroyed. Seventeen artillery men killed, seventy-eight wounded. The report of Admi. Rossmel to the Minister of Marine at Paris, gives a fearful account of this disaster.

1840, *June 6th.*—The corning house of the powder works in the island of Mazagon, India, Bombay Presidency, was blown up by lightning and the houses in the vicinity severely shaken.

A magazine at Dum Dum, also in India, struck by lightning about the same period, and blown up.

1843, *April 22nd.*—The powder magazine of the castle of Puzzalon, in the province of Noto, in Sicily, was exploded by lightning, and the roof of the church crushed in.

1843, *April 23rd.*—The magazine of Gaucin in Spain exploded by lightning. The church and 200 houses laid in ruins, and a considerable number of persons destroyed.

1853.—Lightning struck a powder mill at Hounslow, and blew it up.

1855. *October 7th*, about 2h. p.m.—Lightning struck a firework manufactory in Green Street, Liverpool, and blew it up, by which many persons suffered severely. The manufactory and adjoining house were both destroyed.

1856, *November 6th.*—Lightning struck the church of St. John in the island of Rhodes,—the ancient cathedral of the Knights of Rhodes. A large collection of gunpowder had been deposited in the vaults beneath the church. The whole deposit was inflamed. The building totally destroyed and became a mere mass of ruins. A great part of the town was destroyed, and a considerable number of the inhabitants perished.

1857, *August 10th*, about midnight.—Lightning fell on the magazine of Joudpore in India, Bombay Presidency. Some thousands of maunds of gunpowder blew up. Five hundred houses were destroyed, —nearly 1,000 persons are reported as having been killed by the explosion.

Pacific Papers.—No. II.—*Christmas Island: and Harbours of Hivaoa, Marquesas.*

Christmas Island.*—The shape of this island is that of a horse-shoe, with a spur of land running out from the South-Eastern side of the island. The centre of the island forms a large bay, or lagoon as it has improperly been called, open to the sea on the Western or lee side of the island. At the mouth of this bay is a small island, called Sandy Island, on each side of which is a passage into the bay, through which vessels can go, but they rarely do so, as the anchorage in the North passage is a safe roadstead, with the wind blowing off shore.

Soon after anchoring, the brig's crew was divided into exploring parties, and started off to discover the wreck of the *Fremont*, taking two days' rations. One party followed the shore from the North-West point of the island, the other party striking a course across the land. After two days travelling, during which they had progressed but about twenty miles, they were forced to return to the brig for provisions. This part of the island was found covered with numerous small lagoons of salt water, through which the explorers had to ford in some instances as deep as their breasts. The water was so acrid from the evaporation and heat, that in some of the lagoons it was impossible to remain in it. On dipping the hand in the water and drying it, it would become covered with a crust of salt. The North side of the island was found to be indented with a succession of bays some three or four miles deep.

After seven days searching, the wreck of the barque *Fremont* was discovered in the large bay on the Eastern side of the island, formed by the point of land running out to the South-East. It lay beached high and dry, but not easy of access, and between forty and fifty miles from the brig. The island appeared not to have been visited since the loss of the *Fremont*.

Our adventurers commenced getting out the lumber and piling it up in lumber-yard fashion, and made preparations for carting it over land. They had taken with them drays, carts, and three horses. From the wreck the lumber had to be carted to a lake about seven miles distant. This lake is about five miles long, at one end of which they erected a camp and at the other end another camp. At the last camp a well was dug, which furnished tolerably good water, and though somewhat brackish, the horses drank it freely. On arriving at the lake, the lumber was rafted across it, five miles, then carted again about one mile, then rafted again across the bay some twenty miles or more to the brig. In crossing the bay they found a sand bar, half a mile wide, which stretched across its entire length,

[* The brig *John Dunlap* and schooner *Dolphin* were sent from the Sandwich Islands to seek for the wreck of the barque *J. C. Fremont*, lost on Christmas Island in November last. Capt. Hooper has given the accompanying account of his visit in a Sandwich Island paper, which may prove of use to our readers.—Ed. *N. M.*]

and which was dry at low water, but had about twelve or fifteen inches on it at high tide. Here the rafts had to be lightened and wait for high water. The water in the bay is smooth, and excepting this bar there was no difficulty in crossing it.

But the labour of getting the lumber from the wreck to the brig, a distance of forty-five miles, was no small task. The brig brought about 40,000 feet, and left about 100,000 feet piled up ready for carting. A gang of men and the schooner were left at the island, and it is thought that all the lumber, 200,000 to 300,000 feet, and whatever is valuable about the wreck, will be ready for shipment on the return of a vessel. The brig is too small, and a vessel of 250 tons would be filled readily.

The horses which were taken down to the island for carting gave out and became lame, owing probably to the heat and salt water, as well as to a want of grain. There is plenty of grass on the island, such as it is. The horses preferred this to the hay taken for them,

Capt. Hooper informs us that on the South-West point of the island there is a grove of cocoa-nut trees, numbering perhaps six hundred. On the North side of the bay there are also two or three clusters of cocoa-nut trees, and a cluster on the South-East point. These clusters cannot be seen from each other, as they are twenty-five miles apart. The island is much larger than it is generally supposed to be, and is all of fifty miles in length. In the large South-East bay, where so many wrecks occur, there is no anchorage. The water is very deep close in to the shore, with a strong tide and surf setting in shore. The land is not over ten feet in height in any part, and cannot be seen from a ship's deck more than eight or ten miles distant. Navigators should therefore be cautious in approaching it.

Great numbers of birds exist on the island, as well as turtle; and in the bay near the wreck the fish are so abundant and tame, that sitting on the beach with a hook and line fine large fish could be hauled in as fast as the hooks could be baited.

Capt. Hooper found pieces of the wreck of the *Briton*, lost about twenty years ago on that island. The timbere were known to be her's, as they were cedar, of which wood the *Briton* was constructed. But a singular circumstance noticed was that these timber lie about 600 feet from the present shore, and it is supposed that the land has made out that distance into the sea during the twenty years since the wreck occurred. This would appear to be satisfactory evidence that the island is extending its limits. Pieces of ship timber were found strewed along the shore for a distance of more than forty miles.

A singular circumstance noticed was, that the fish in the large lagoon or lake near which the camps were erected, were all dead, and in passing over the water in a boat they could be seen lying on the bottom dead. And on the lee shore of this lake, these fish, which resembled herring, only a little larger, were piled up in winrows, in a state of preservation. On being broken in two, they were as sweet and wholesome as possible. The water in this lake is extremely salt, stronger than any pickle ever used in curing fish or meat.

Salt of the finest quality is very abundant on the banks of some of the lagoons. We have seen specimens of it brought in the brig. Ship loads could be found, but it is next to impossible to get it from the lagoons to the anchorage.

Fanning Island.—The harbour of Fanning Island lies in lat. 3° 49′ N., long. 159° 20′ W. Approach the island from the East, and sail round the South side. There is no such island in this vicinity as is laid down in the charts as American Island.

Christmas Island.—The harbour, which is under the lee of the N.W. point of the island, is in lat. 1° 58′ N., and long. 157° 30′ W. The East point of the island lies about forty-five to fifty miles Eastward of the anchorage, and vessels in approaching cannot be too careful of this point, as it is here where nearly all the wrecks occur. The island is not more than eight feet in height, and cannot be seen from a ship's deck more than seven or eight miles off.

Diana Shoal.—This shoal has never, we believe, been laid down on any chart. It lies in lat. 8° 40′ N., and long. 157° 20′ W. It was discovered by Capt. English, of Fanning Island, and has on it only six feet of water. The observation was taken at midday, within a short distance of the shoal, and may be relied on as correct.

The *John Dunlap* left Honolulu April 20th, and made the run to Christmas Island in fourteen days. Returning, left Christmas Island July 1st, and arrived off this port July 25th. Was seven days beating up from the leeward of the island of Niihau.

Harbours of Hivaoa.—Captain Moore, of the *Morning Star*, employed by the Missionaries among the islands of the Pacific, has furnished the following sailing directions, which may be of service to shipmasters wishing to visit the Marquesas for supplies.

Bring the Island of Fetouhougo or Hood Island to bear N.N.W. ten miles. If wishing to go into Paumau Bay, which is the easternmost, steer boldly in, hugging the shore on the port hand, and the mouth of the bay will plainly open, in the bottom of which the Catholic chapel is a prominent object. The starboard head is a high, sugar-loaf mountain, on the top of which are several small hillocks. The port head, going in, may be known by a large black rock on the apex of a hill close aboard. As you enter the bay just steer clear of a large ledge of sunken rocks which appear about five feet above water, and let go your working anchor about forty yards to the leeward of it. Pay out thirty fathoms and drop your best bower under foot, then run out a kedge astern to keep from swinging, as there is a strong undertow. Ten fathoms will be about the depth of water. In going out it will be well to make fast a small hawser to the ledge and heave up both anchors and make sail, laying clear of the lee point without difficulty.

Hanaahi Bay.—is three miles to the westward of Paumau. There are no distinctive landmarks here and the bay is small, but affords good anchorage. Fifteen fathoms is found square with the heads. Keep nearest to the eastern side of the bay.

Hanakakuua Bay—is the next bay to the westward of Hanaahi.

This bay is easy of access and egress, and affords an excellent place for watering. Hogs, poultry, bananas, bread-fruit, and other esculents in abundance.

Hanatitapa Bay.—The next bay to the westward is Hanatitapa. This bay may be known by a magnificent waterfall, which may be seen at the distance of ten miles. The water rushes over a dark perpendicular rock, and falls between two hundred and three hundred feet, where, striking the surface of a smooth declining rock, it is broken into foam and spray, producing a scene of beauty in nature scarcely ever equalled. The bay looks into the S.E. and is two miles East of the waterfall.

During December, January, February, and March no vessel should anchor in these northern and southern bays. The whale ship *Panama*, of Sag Harbour, was wrecked here in a gale from N.W. There is a land-locked harbour on the South side, I am informed, affording good anchorage.

Island of Fatuhiva.—This island is about eight miles long, North and South, and four miles broad. On approaching the land from the S.S.W., a high and remarkable mountain will be observed, forming at its base a point, which lies in lat. 10° 30′ 30″ S., long. 138° 43′ 13″ W. Immediately to the northward of this point is Omoa Bay, with good anchorage with the following depths of water:—square with the heads, 25 fathoms; fifty yards in, 14 fathoms; fifty yards further in, 22 fathoms. From this depth it gradually shoals to the shore, where there is considerable surf at all times. Pigs, poultry, bananas, cocoa-nuts, and bread-fruit can be obtained on reasonable terms. Water is not easily obtained. There is plenty near by, but the casks are liable to get stove on the stones by the surf.

In standing to the northward along shore vessels should not approach too near that high north-western bluff, as the tide sweeps along powerfully and the wind is always baffling.

Fetuhugu or Hood Island.—A sunken reef, we are informed, lies one or two miles from this island, but in what direction could not be clearly learned from the natives, their statements in regard to it contradicting each other. Westerly currents constant, three-quarters of a mile per hour.—*Commercial Advertiser, Honolulu, Hawaiin Islands.*

MARINE TELEGRAPH NOTICE.—Masters and officers of vessels bound to or past Honolulu are requested to take notice that a Marine Telegraph has been erected on the ridge connecting Diamond Head with the mountains inland, and all vessels passing within ten miles of the head will be reported. China bound vessels can display their signals without calling out a pilot. The national ensign at the main or fore is a signal for having a United States mail on board for Honolulu. This signal should be displayed at the fore only when a pilot is wanted. Vessels can run along within two miles of the shore with perfect safety, and without losing the trade wind.

Wreck of the "Dunbar," *and Loss of One Hundred and Forty Lives.*

Another fearful wreck, by which 140 lives have been sacrificed, and one alone left to tell the tale, has just occurred at Sydney. It is remarkable that one of our oldest colonies, gifted with so splendid a harbour as it is, should for half a century remain so badly lighted. This important harbour, which can boast its dry dock and its establishments for the repair of ships, and is frequented by some extraordinary amount of tonnage annually, has but one sea light, and that badly placed for the guidance of shipping. The light is no doubt an excellent revolving light, but the proper place for it, as a single light, would have been on the inner South Head, and that would have enabled ships to round it and enter the harbour. But as it is on the outer South Head, a mile and a quarter from where it should have been, another on the outer North Head should have been constructed long ago, and we are surprised that it has not been done, and that more wrecks have not taken place from the omission. The feelings of Captain Green on not being able to discover the North Head when he was running before the wind and when he soon afterwards saw the light on the outer South Head "right over" the ship, as Johnson says, and knew that it was more than a mile and a quarter from the point which he should have rounded, must have been fearful indeed,—but they were of short duration, for in another moment or two he was struggling in vain for life, with all who had been in his charge. Now there can be no doubt that a light on the outer North Head would have saved this ship; for with the weather ever so bad it would have been seen between the squalls, and the position of the ship thereby known. The people of Sydney must not wonder at such calamities for at their door they will lie until the outer North Head is lighted. Of the propriety of running for the harbour under such serious circumstances we need say nothing, as we cannot but suppose that the bearing and estimated distance of the only light seen would justify the attempt to take the entrance. The following is the account of this calamity:—

The *Dunbar*, the property of Messrs. Dunbar, of London, was built at Sunderland by Laing, for her owners, who are celebrated for the extent of their mercantile marine. She was launched on the 30th of September, 1853. She was of 1,980 tons burthen, and her registered tonnage 1,321. Her dimensions were:—length of keel per measurement, 201ft. 9in.; extreme breadth, 35ft.; depth of hold, 22ft. 7in.; height between decks, 7ft. 3in. Her timbers were British oak, and she was planked and decked with East India teak. Her masts, also of teak, were of enormous strength, the mainmast weighing nine tons, the foremast eight tons, and the mizen in proportion. The poop was eighty-two feet in length, and seven in height. Her cost when fitted for sea was £30,000; all that remained of her was sold, although within so short a distance from the city, for £182 10s. The *Dunbar* was uninsured. The cargo was estimated at £72,000. She sailed

from Plymouth on the 31st of May. Her officers and crew were fifty-nine in number, and she carried sixty-three passengers. Every one on board, with the exception of one of the crew, perished in the waves. She had had up to the moment of the catastrophe a prosperous voyage. There had been no deaths, no sickness, nor disaster; she had not lost a spar nor a rope. There were no hands on deck except the watch; there was no alarm among the passengers or crew.

On August 20th she sighted Botany Bay. Johnson, the sole survivor of the wreck, gives the following account of the subsequent working of the ship:—

"We carried the same sail throughout until we made the land at Botany. This was on the Thursday evening. All hands saw the land distinctly. After that the captain ordered us to close reef the topsails, and we were close hauled to the wind. The wind was then about East and by South. We were close to the wind and lying about N.E. and by North, and lying along the coast. At the time we made this land, to the best of my opinion we were about ten or twelve miles off, and the ship had her starboard tacks aboard. We were under easy sail, sails having been shortened after we saw the land. We had on no topgallant-sails, and we had three reefs in the main and four reefs in the fore-topsail. The mizen-topsail was stowed, and the spanker was brailed up. The inner jib and the maintopmast-staysail were taken in. The weather was squally with thick rain.

"When we made the land at Botany we kept on our course. This was betweeen six and seven o'clock, and when night came on we still kept our course, and shortly afterwards we saw the Sydney light. I saw it about seven o'clock, shortly after getting supper. It was known to be the Sydney Head light. The vessel was then lying her course about N.E. and by North. She was lying her course in that sort of manner that we had no difficulty—we had plenty of room. She was not at all labouring with the sail she had on. I know that she was making heavy lee-way. It is my impression that she had not got enough sail on her to prevent her making this lee-way. This was not said on board ship, but I think so.

"Captain Green was on the deck. They were not shaking the ship up into the wind but keeping her clean full. The captain was not conning the ship. The chief officer was on the poop likewise. The watch on deck went below according to orders, and were relieved at eight o'clock. It was raining hard. The light was only seen at intervals, but distinctly. It is a revolving light. I was on deck at eight o'clock, as I belonged to the chief officer's watch. The captain remained on deck when the watch was relieved, and gave orders the same as usual. Everything was attended to, and his orders were punctually obeyed. Everything went straightforward, and there was no annoyance of any kind. All the men were quite correct and obeyed orders. We stood along the coast till we fetched the light up to the lee mizen rigging. The vessel was not labouring; she came to her helm willingly. One man only was at the wheel until we began to square yards, when two men were sent there. The lee mizen rigg-

ing was on the port side of the ship. The captain was on the weather side of the deck. He had no night glass, but the second mate had a case of what we call opera glasses.

"When the light was brought to bear upon the lee mizen rigging all hands were piped up by the boatswain. The hands turned up. The boatswain sung out for 'all hands to wear ship.' These were the words that were passed along. The usual orders were given. When we came on deck orders were given to square away the yards. We got the orders to square away. After a short time the captain gave orders to haul up the foresail; it was then reefed. The ship then kept before the wind. The light was clearly visible at times. When the words were given to square the yards the light had previously been seen. The vessel was running in on a heavy sea. It was blowing very fresh in squalls, with thick small rain. It was about eleven o'clock when the hands were called up. There were two men on the forecastle, with the third mate, on the look out for the land. The third mate was on the forecastle with the two men, and the second mate was afterwards sent there also. The captain sung out, 'Do you see anything of the North Head?' and the mate said 'No; I see nothing of it.' I was on the poop at this time standing by the braces. She had the light a bit on her port bow when I saw it at this time. Then the captain sung out to the man at the wheel to keep his luff; the yards were about a point or so to port. I heard these words; it was done. . The course of the ship was changed a small bit by this.

"Shortly after this the second mate sung out, 'Breakers ahead.' This was a few minutes afterwards. The captain sung out to the man at the wheel to port his helm. We were all at the braces. He told us to haul in the port braces, and brace the yards sharp up. It was done, and done quickly, without delay. There were thirteen able seamen in each watch. There was no want of hands. We were well manned, and we could see the light; it appeared right over us. I heard no further orders given. A few minutes after we hauled the yards round. About two minutes after she went side on to the rocks. She was trying to stretch out to the eastward, her head lying along the land to the North. Then we struck."

On Friday, the 21st of August, at half-past seven in the morning, a pilot first discovered that a vessel had been wrecked near the light-house. Captain Wiseman, of the steamship *Grafton*, entered the Heads at half-past nine o'clock the same morning, and from the floating fragments about the Heads, saw that a vessel had gone ashore and had been wrecked, and brought to Sydney the alarming tidings at ten o'clock a.m. The state of the weather prevented the signals from the Heads being seen at the Sydney station, and thus no information of this disaster had reached the city at that hour.

Without delay many persons proceeded to the wreck. Public vehicles were engaged, and hundreds, notwithstanding the state of the weather, went on foot to the scene of the disaster, six miles from Sydney. An awful spectacle presented itself before their eyes. The

waves, agitated with the fury of storm, threw the mutilated bodies of the dead upon the rocks—now bearing them back into the deep, and now hurling them back again on the crest of the wave.

A steamer proceeded down the harbour shortly after the report of the wreck, and obtained complete evidence that the lost vessel was the *Dunbar* (a mail-bag and a cask both marked "Dunbar"), and not, as supposed by some, a North American vessel, or by others the *Vocalist*, an emigrant ship then due, and since safely arrived.

The agents of government, Captain Pockley of the harbour department, the police, and the members of the pilot establishment, commenced an active search to rescue and guard whatever might be floated to the shore. Captain Denham, and several officers of the Royal Navy, assisted in this task. The violence of the surf prevented their approaching the scene of the wreck. The weather continued boisterous, and the waves rolling with unabated force and deafening noise continued to dash against the cliffs. Several bodies were carried by the current into Middle and North Harbours.

Johnson has given a clear account of his own preservation. He states that the mizenmast went first, and then the mainmast; that he was on the poop when the vessel struck, and was thrown down. He then caught hold of a stanchion. When that gave way he made for the cabin, but the rushing in of the water prevented his passing through, as he intended. He then went below, and got out of the skylight to leeward, and up the side of the chain plates of the fore-rigging. These being broken, he was thrown over, holding by the chain plates which held some of the fore planks together. Johnson remembers that several seamen were near him: one (the old boatswain) said to him "We shall have a watery grave."

Johnson having found himself on a shelf of the rock, was enabled to obtain some shelter behind a projection, and there he slept. When the morning broke he saw the wreck and the bodies of his late companions. He endeavoured to make signals, but was undiscovered. He uttered cries, but the boiling ocean prevented them being heard.

A careful search was, however, making. Every spot was occupied by spectators where there was a chance of seeing any object below. At last a cry was heard—"There is a man upon the rocks." A rope was lowered without delay. After some failures it was brought within his reach. There was danger from the projection of the rocks, but having entwined the rope with seaman's skill around him, he gave the signal, and was drawn up some two hundred feet, and received by the crowd with cries of gratulation and joy. He had passed about thirty hours upon the rocks. Johnson is a native of Drogheda, in Ireland, and is about three-and-twenty years of age.

After his rescue an incident occurred such as always excites the enthusiasm of an English people. It was reported that there were other persons upon the rocks. It was impossible to approach them by sea. An adventurous Icelander, Antoine Wollier, an apprentice to a jeweller in Sydney, offered to descend. He was lowered by a rope

from that dreadful height, and continued more than half an hour in his search. Nothing was discovered, and Wollier was drawn up in safety, amidst the shouts of the crowd. The mayor of Sydney, at the suggestion of Captain Loring, of H.M.S. *Iris*, opened a subscription on the spot, and presented him with £10 as an acknowledgment of his intrepidity. In answer to the congratulations of the mayor, he said, "he did not go down for money, but from the feelings of his heart." A considerable sum has been added by the merchants to this subscription.

A large quantity of goods, broken and scattered, were cast upon the shore. Some were articles of dress. There was also a piece of crochet work, with the needle and reel of cotton attached; a number of children's toys; and a small hat with a feather in it, recognised by Johnson as having been worn by a child on board the *Dunbar* in the tropics. There were also found a few fragments of dress, marked with the names of the owners.

An inquest was held on the 24th, at which Johnson's evidence, part of which we have given above, was taken; and the jury returned a verdict, in which they say—"There may have been an error of judgment in the vessel being so close to the shore at night in such bad weather, but the jury do not attach any blame to Captain Green or his officers for the loss of the *Dunbar*." At the same time they call attention to the inadequacy of the pilot arrangements of the port of Sydney.

CYCLONES IN THE HOOGHLY,—*Notes for Ships and Steamers lying in the Stream, or at Moorings at Calcutta, or near it; and for River Boats on the approach of a Cyclone.—By Henry Piddington, President of Marine Courts.*

1. These notes are not written for the wrong-headed, who inevitably take a dislike to advice because it is offered to them; or for the presumptuous, who think they know every thing every where, because no one contradicts them on board their own ships: but for men of sense, who are always ready to allow that those who have given many years of study and observation to any subject probably know most about it, or *something* about it which they do not know.

2. A glance at the chart of the river will show us that the Calcutta Reach of it lies about N.N.E. and S.S.W., while Garden Reach runs to the W.b.N.; the next reach, to Akra, about South, and the next S.W. to Oolabariah. This must be borne in mind.

3. A cyclone at Calcutta usually commences somewhere between North and East, say N.E. If, as in 1842, the centre passes over the city, then the North-Easterly gale continues to increase in strength

till it is a hurricane, the barometer always falling, of course, till the wind abates quickly to a calm more or less perfect and suddenly, which calm may continue for half an hour to two or three hours; and then comes another tremendous burst of the hurricane from the South-Westward, even more violent and terrific than before, lasting till the rearward portion of the cyclone has passed over; and it is in this second part of the cyclone that the mischief of them is mostly done. If, as in the cyclone of 1852, the centre passes up to the Eastward of Calcutta, then the wind veers to the Northward, and is heaviest from that quarter; and it ends at N.N.W. or West. If it passed up to the Westward of Calcutta, of which we have no instance on record, then the wind, beginning about East or E.S.E. veers to S.E. and South, where it would be heaviest; and ends at S.W. The dangerous cyclones for us, then, are those of which the centre passes over or close to us, so as to bring a sudden shift.

4. For, in the first part, where the centre passes over us, as the wind is generally to the Eastward of N.N.E., the ships at the moorings are lying more or less under the lee of a weather shore, and no *great* sea gets up for those in the stream, though often a very disagreeable one. But in the second part the whole sea from the lower reaches rolls up, and adds greatly to the strain on the cables; the ships being also less sheltered than before. In the cyclone of 1842, ships were blown from their anchors, and drifted and sunk as high as Cossipore? and in the mooring tiers the inner ships were on shore, and the others heaped up on the top of them! In a word, every man who has not seen a real tropical cyclone may be well assured that his imagination cannot picture to him half of its tremendous power of mischief, even in a river-port like this, where ships are apparently so safe from the effects of wind.

5. And every sailor of the old school knows also that this power of mischief is increased by one half when the wind's force exceeds a high figure (say nine on the Admiralty scale) and for all ships except men-of-war, by the infatuation of our ship and steamer owners in *under-anchoring* their vessels! i. e. giving to 1,200 ton ships the anchors which an 800 ton vessel formerly carried; and so on. In steamers this has been carried to a preposterous extent; no doubt to ease them forward when driving through a sea. The steam being got up, will, it is always supposed, ease the strain on the cable sufficiently.

6. But this is often a dismal mistake, even with paddle-wheel steamers, as witness the stranding of the P. & O. C.'s steamer *Precursor* at Kedgeree in the cyclone of October 1851, in spite of her steam; the disasters at Balaclava, where not a single captain appears to have thought of *backing* his sheet anchor! and at the Havana, a land-locked basin, where eighty vessels, steamers and sailing vessels, were driven on shore in the Cuba cyclone of 1844.

7. We come now to the precautions to be taken in a river-port like Calcutta, and especially for the ships in the stream. Those at the moorings can do little else beyond looking to and doubling their

bridles, and getting down as much top-hamper as they can; their top-masts even if they can manage it, and this they may do by lending each other their scant crews; and if too late at first, doing it in the calm.

8. Ships in the stream in Calcutta should first look to their hawse, which I regret to say is rarely kept clear. Then to getting down top gallant and even top-masts and lower yards, before the gale becomes too heavy.*

9. The ground tackle has next to be thought of; and here we must bear in mind that in the first part of the cyclone the ship will probably be riding to her ebb anchor, and that if she drags that, even after veering away all she can, she has still to bring both anchors ahead with the longer scope on the Northernmost anchor before she is adrift in that part of the gale; but the utmost care must be taken in the calm, and before the shift, to avoid her fouling her anchors, and then to be ready to veer away all the chain that can be afforded on the Southernmost anchor, which, foul or clear, will now be the riding anchor till both perhaps are again brought ahead. I do not allude to the tides, as it is quite uncertain how they may be running, and indeed both tides are usually blown back at the surface by the force of the wind in the height of the cyclone, if it is against them.

10. But in either half of the cyclone, the light anchors we have now-a-days may be insufficient to hold the ship; and as no sailor would, if he could help it, I suppose, go on shore with his sheet anchor at his bows, even in a river-port, I will assume that our ship or steamer has her's ready, with a good scope of chain to it, and the inner end properly clinched to the main-mast, so as to be ready for letting go under foot, or on parting.

11. But in weather such as I have described above, the sheet anchor alone, nor, if the chains have not, ere this, parted, the sheet and the two dragged bowers may be unable to hold the vessel; ***unless the sheet anchor before it is let go is backed,*** which should always be done by clinching, say 20 fathoms of hawser or chain to the crown of the sheet anchor and bending them to a kedge which should be ready for letting go from the cat-head before the sheet is cut away from the chains. An anchor so reinforced will often hold when nothing else will, because the backer is not subject to the jerks of the lifts from the bight of the chain.

12. When the sailor has done all he can with his ground tackle, if he finds himself still drifting, and above or below the shipping, he should cut away or be ready to cut away his masts; for both above and below the Calcutta Reach there are steep and dangerously hard banks; and grounding upon them in any weather is bad, and in a cyclone may prove fatal, especially to a loaded or an iron ship; and

* Nothing so common in our cyclones in the Eastern Seas as for them to rise to such strength in a few hours that even in men-of-war the top gallant masts cannot be got down nor can a man go aloft!

this should be borne in mind, because the soft muddy banks give a stranger to our river the idea that its shoals are also mud banks; than which, for the most of them, nothing can be more erroneous.

Calcutta, 20th June, 1857.

Postscript for Boats or River Steamers and Flats.

In cyclones, it may often become with steamers, boats, and small craft, of great importance to know that the shift or veerings of wind will take place in such or such a direction rather than in another; for by this knowledge they can often run at the commencement of a cyclone for an anchorage, at which they can lie sheltered through the whole of it; or they can, if anchored on a weather shore, profit by the lull to get over to the other, before the shift of wind comes on, which would convert their former shelter into a dangerous lee shore. Let us, as an example take the Hooghly or Canton River, both much frequented, and running about North and South towards their mouths, and suppose ourselves in them exposed to a cyclone crossing them from East to West, in a launch with treasure on board, or in a steamer. It is clear that for the first half of the tempest, if the wind is to the Eastward of North, the centre will pass to the South of the boat, and as the wind will be N.E. and East, and South-Easterly, the Eastern shore or any bank sheltering from these quarters is safe; but that if obliged to anchor to the South of a bank or island, when the centre is passing exactly over the boat's position, the latter part of the cyclone may drive her on shore, or sink her at her anchors. The Storm Card also shows how, if the wind is to the Westward of North it will veer to the West and S.W., and thus perhaps render an apparently safe berth really dangerous, if due precaution be not taken.

In a word, the Law of Storms will here as in many other cases, *fore-warn* the mariner of what is to come; and "fore-warned is fore-armed." The tales which we have all read of the wind's "*unfortunately shifting to the opposite quarter*," when "the boat (or ship) was driven on shore and all hands perished," will be changed into,—"During the lull (or when the wind had veered to ——) the boat (or ship) in due anticipation of the latter part of the cyclone, changed her berth to the —— shore, where she safely rode out the remainder of it without damage." And let me add, that every officer and commander of whom this shall be said or written, will be held in that degree of professional esteem which is the rightful meed of such careful and scientific management of the lives and property entrusted to his charge, as contrasted with the fatalism, the fool-hardiness, or the helplessness of ignorance.—*Sailors's Horn Book*, p. 145.

Nautical Notices.

Particulars of Lights Recently Established.

(Continued from p. 612.)

Name.	Position.	Where.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. [Bearings Magnetic.]
40. StromaSkerry Beacon	Pentland Firth	on S.W. extr.		40		Surmounted by a cage.
40. Bo Caolas Beacon	Loch Inver	Scotland, W. Coast		30		Formed of cast iron pillars and cage.
40. Screen Rocks Beacon	Whithorn Port	Scotland, S.E. Coast				Iron, carrying a barrel.
41. On colour of buoys	*see note*					
42. McMillan Rock Buoy	Sound of Raasay	Scotland, W. Coast				M'Queen's farm-house on with schoolhouse in Skye W.$\frac{1}{4}$N. N.E. wing of new villa in Raasay on with N.W. angle of wall enclosing field and S.E.b.E.$\frac{1}{4}$E.
42. Gulnare Rock Buoy	Inner Sound Scalpa Isl					Ben Clachan cairn, Applecross, on with middle of beach on Skernderrick N.E.$\frac{1}{4}$E. West Shoulder of Cnoc na Coinneach knoll on in line with South point of Eilean Longa S.S.E.$\frac{1}{4}$E.
43. Formby Light Vessel	Mersey Entrance	Liverpool				Position of light-vessel changed to N.W.$\frac{3}{4}$N. one mile to elbow of Queen and Crosby Channels, with Crosby lighthouse S.E.b.E.$\frac{1}{2}$E. easterly 4$\frac{1}{2}$ miles. Buoys of channels changed. Pilot water.
44. Ru Ushenish	South Uist, Easternmost Headland	Hebrides	F.	176	18	Est. 10th Nov., '57. On East side of Island South Uist.
44. South Rona	N.E. Point of Island	Scotland, W. Coast	Fl.	222	20	Est. 10th Nov., 57. Flash every 12 seconds.
44. Kyle Akin	West Entr. of the Narrows		F.	58	10	Est. 10th Nov., '57. On the coast of Skye from Paba Island eastward as far as fairway of inner sound it is red.
45. Ornsay Island	S.E. Extr. of Island	Scotland, W. Coast	F.	58	12	Est. 10th Nov , '57.
45. Ru na Gall	South Shore of Sound of Mull	Scotland, W. Coast	F.	55	12	Est. 10th Nov., '57. It appears *red* to the northward out to sea, *green* towards the New Rocks, Red Rocks, and Stirk Rocks, and *white* to the southward in the Sound of Mull.
46. Block Island	Long Island Sound	United States	F.	60	13	Est. 28th Oct., '57. When two lights one-third of a mile to the southward were discontinued. Visible when bearing from W.N.W. to N.E.b.N. Var in 1857, 8° W.

F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established. m. Mean level of the sea.

Note.—The Commissioners of Northern Lighthouses have given notice that in adopting a uniform system in colouring the buoys under their direction,—by which arrangement vessels entering a harbour should keep red buoys on the starboard hand, and black buoys on the port hand, while chequered buoys indicate centre patches,—the buoys of Dornoch Firth, Cromarty Firth, Moray Firth, Inverness Firth, and Oban Bay have been adapted to this arrangement.

THE DEVIL ROCK.—*Atlantic.*

Rocks and shoals of every kind have ever been the prime game of the *Noutical*, the end and object of which is to secure ships and seamen from these insidious dangers. It has been our good fortune to bring many to the light of day and show their "whereabouts." We have now two before us,—the Devil Rock in the Bay of Biscay, and one twenty miles North of the Pratas in the China Sea. The first is an old acquaintance, and if the measures now adopting be successful in *proving* its existence and establishing its position on the chart, then shall we have another occasion for rejoicing that the pages of the *Nautical* have effectually lent their assistance to ferret it out. The latter we trust will soon share the same publicity.

It is now above a quarter of a century since that very troublesome vigia, called the Devil's Rock first engaged our attention, and we placed on a chart no less than ten positions assigned to it, along with the track of one of her Majesty's ships, the *Ariadne*, that was sent on purpose to look for it. As a matter of course the *Ariadne* was unsuccessful. Her commander *saw* no symptoms of a rock that was so repeatedly said to be in the way of our passing trade, and she returned after a few days of looking about, leaving us as much in the dark about it as ever. And yet, if we are to believe accounts, it has been seen, and not only seen, but report has reached us that some "intrepid mariner" has even stood upon it. After the rock 100 miles East of Malta that has been so fairly blown out of the water by Capt. Spratt, and which a certain vessel was said by her captain to have struck, when he knew very well she was only trying the strength of wood against rock on the coast of that island itself, it would be perhaps wrong to place too much confidence in what is said or even done on these subjects. Still, this vigia has held his place with so much pertinacity: he is so old an enemy to navigation, and his descent from antiquity so considerable, besides having been seen more than once, and spoken of so repeatedly with *confidence*, that we are glad to find that his claims to attention are at length recognized, and his whereabouts will fairly undergo the test of "deep sounding," that best of all means for ascertaining the existence or not of reported islands and as they are called *hoc genus omnes.*

In our own volume for 1842 will be found Lieut. Sprigg's letter concerning this danger, which, as many of our readers may not have it at hand, we will quote here. It runs,—

"Her Majesty's brig under my command on the 6th of August was distant from the Devil Rock at noon thirty-five miles, and doubting its existence, I shaped a course directly for it. At 7h. p.m., whilst looking over the taffrail, my attention was suddenly attracted by a change in the colour of the water under the ship's counter, which had been of a blackish green. On looking over the starboard

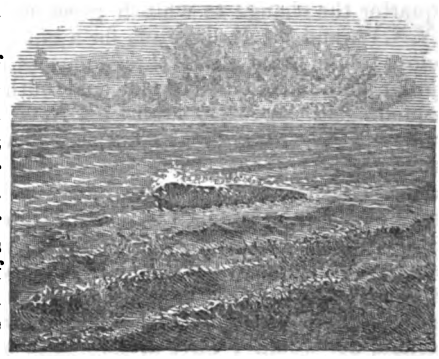
quarter the change to whitish green was more vivid, extending in a N.N.W. and S.S.E. direction for a mile and a half, its greatest width close to our wake about three quarters of a mile; having very irregular and indented sides in bold outline with the dark water surrounding it. A heavy swell from N.W. semed to flow over the patch without any visible break; but that it was a shoal no doubt exists in my mind; or on many who saw it. The mast-head man unfortunately did not report it, though he admits having seen it three miles before reaching it, and about the same before he lost sight of it astern. From the deck in about fifteen minutes it disappeared, preserving its shape and colour to the last. The sun was 6° or 8° high at the time, the vessel going eight knots, and as we had no more than four days' provisions on reduced allowance, I did not feel justified to return and sound, nor would I have attempted to pass over it in the brig. Its situation by our reckoning, deduced from afternoon sights by the sun and the planet Jupiter, placed the spot in lat. 46° 12′ N., and long. 13° 3′ 30″ W."

We will next add what Capt. Livingstone says of it, a gentleman well known for the many useful observations he has afforded his brother seamen in our directories. "At about 2.20 p.m.," he says, "when supposed to be certainly to the Southward of the Devil Rock, and looking over the lee quarter I saw what at first appeared to be a bottle, about 30 fathoms to leeward. The sea immediately covered it, and on its emerging again it seemed like the back fin of a shark, in the wash of the sea, about four inches above water, and of a triangular form. I sung out, 'A shark, and a large one too.' To my surprise it did not seem inclined to follow us in the wake, and we passed it quickly. A few moments afterwards, as I was attempting to point out the place I had seen it in to the mate, he remarked that he saw breakers off the boom end; and on paying attention to it I plainly saw a slight curl and break of the water for fully half a mile; but as the water was very smooth the break was not great, though still plain enough, while no part of the surrounding sea broke. Some time afterwards, when the rise of the thermometer in water led us to reason on its cause, and reconsider the circumstances, the result was an impression that we had passed a large and very dangerous shoal situated in about 46° 9′ 30″ N., and 12° 50′ W."

It would be needless to add to these reports those already known, and we shall therefore add only the latest, which is that of the barque *Esmeralda*, on her voyage home from Swan River to London, which vessel is stated to have passed a rock above water in lat. 45° 13′ N., and long. 16° 48′ W. by reckoning; but as this reckoning was supposed to be considerably in error, the rock seen may have belonged to the same submarine ridge of which we consider the Devil Rock to be one of the peaks. We annex the following appearance of the rock, that has been obligingly presented to us by Capt. E. Henderson, R.E., who was a passenger in the vessel.

It is gratifying to be enabled to add that H.M.S. *Cyclops* has been

directed to examine the position of this formidable danger with some deep casts of the lead. It seems scarcely possible but that such examination must bring to light this formidable danger, for that there is a group of submarine mountains reaching the surface in more places than one in the locality of this danger, there seems good reason for believing, and we shall look with no little anxiety for the report of Capt, Pullen, and trust that such discovery, should it be happily made or not, will lead to similar examinations in other parts, and lead us to follow up the example of the little *Dolphin* of the United States Government.



16th June, 1856.—*Barque "Esmeralda" at 3.30 p.m. passed a rock about 800 yards highest part, about 4 feet out of water.*

The Pratas—and their Dangers: *China Sea.*

Another total loss by wreck has to be added to those which appeared in our February number, not on the Pratas, but on a rock twenty miles North of that dangerous shoal. The following communication from Capt. Cracroft, who knows them well, and is feelingly alive to warn his brother seamen of their dangers, will inform them of another rock twenty miles from them. The information is most important in more respects than one, for it affects the question of the light, and one such danger having been discovered, one naturally inquires, whether there are not more. We trust, however, with Capt. Cracroft, that this question will be determined by the officer who we conclude has been directed to survey this nest of rocks and pirates, and while awaiting his report and the measures arising from it, we shall caution seamen still to give a wide berth to the Pratas, in order that they may escape not only the danger of wreck by rocks, but that of plunder afterwards, as in the case of the unfortunate survivors of the *Dorothea.*

Sir,—From the *North China Herald* of August the 22nd, I extract for your information the following important notice, and trust that the attention of the officers employed on the survey of the Pratas Shoal may be directed to it.

I have, &c.

P. Cracroft.

To the Editor of the Nautical Magazine.

"On the 16th of July the Dutch ship *Dorothea*, Capt. Avandan Kulk, from Macao to Batavia struck on a rock about twenty miles to the Northward of the Prata Shoal, and became a total wreck. This rock is under water, and of a pyramidal form, with deep water all round it, and has about 9 or 10 feet on it at low water. Its latitude is 21° 5′ N., longitude 116° 40′ E. by a good chronometer. The crew with the captain, his wife and child, abandoned the vessel. Two days after leaving the ship some pirates fell in with them, and robbed them of everything they possessed, even to their clothes. On the 24th ultimo they reached Swatow, and went on board the Dutch brig *Anna*, bound to this port," (Shanghai).

RED BUOYS *to Starboard and* BLACK *to Port from Sea.*

Oban, November 17th, 1857.

Dear Sir,—I believe I need offer no apology for requesting through the pages of the *Nautical* the circulation of any proposition tending towards the benefit of navigation. The last number contained one upon a gigantic scale, which, carried out, would prove of incalculable service now that propulsion by steam has become so general. The cost and novelty will I fear stand much in the way of its adoption. Mr. Herbert's principle and proposition should, however, be thoroughly tested upon such a scale and in such a position as would be necessary for so extended an undertaking, for even should our channels never receive so perfect an illumination, there are many situations round the coast where the floating beacon would prove of greater service than the light on shore, as its position could in most cases be chosen according to the necessities of the case, irrespective of many considerations which must often now rule the selection of the site, and of necessity deprive the light of that full benefit it otherwise would afford.

My proposition is both simple and inexpensive, but will, I trust, prove to possess many advantages. It is the adoption of a general uniformity in distinguishing by colour the various seamarks round our coast, especially beacons and buoys, so that a seaman familiar with the arrangement at the port to which he belongs, may under circumstances when the navigation is not intricate, thread a sure course past other buoys, especially in cases of distress, when driven to seek shelter in places where he is not acquainted,—perhaps unable to procure a pilot, or upon occasions when one might not be considered necessary.

Few places are so unfavourably situated for a commercial emporium as Liverpool: its estuary being so choked with banks as to resemble at low water more a sandy desert than the marine highway to so important a port; and yet, owing to the watchful supervision of its

Marine Board to the careful arrangement of its numerous seamarks, few casualties occur, and these only when the storm overpowers the best efforts of forethought and of skill.

The general system there adopted has been in force since 1834, and, although new channels and repeated changes have necessitated some deviations, the principal arrangement to which I would direct attention has not been departed from.

Thus, *red* buoys are to be left on the *starboard* hand, *black* upon the *port* when entering a harbour or running through a sound or passage from seaward; *chequered* buoys to denote centre patches, and when the course is to be abruptly changed the buoy surmounted with a perch. Where there are many channels to be distinguished one from the other, the colour can still be adhered to, as by stripes—horizontal or vertical, checks, &c.; and another distinction may be found in the shape of the buoy. It is also desirable that the buoy should bear some reference to the position to which it belongs—such as the initial of the channel, &c.,—and its number, commencing from seaward. This in hazy weather will frequently assist the mariner to identify his position, or, in case of a drift buoy being picked up, lead to its being speedily replaced.

I have recommended the principle adopted at Liverpool because, independent of the great amount of shipping, both home and foreign, which frequent that port, the peculiarity of its position, before alluded to, has necessitated an unusual number of buoys and seamarks,* demanding, and having received the greatest attention in their arrangement and distribution. Other ports also upon the West coast have long since pursued the like system and the Commissioners of Northern Lighthouses† have lately recognised it, and are carrying it into effect.

I am, &c.,

E. J. BEDFORD, *Commander, R.N.*

To the Editor of the Nautical Magazine.

LIGHTHOUSES AND LIGHTHOUSE BOARDS.

The free discussion of the application of public funds in this country has long been the privilege of the land, and has generally boasted its beneficial results. Such discussion, however, has not reached one branch of them yet, which is their application to the erection of lighthouses. And the reason of this has long been evident to those who have attended to the subject,—no such discussion was necessary.

* The number of buoys including the entrance to the Dee estuary amounts to 82; of lighthouses, 7; lightvessels, 3; beacons, 14.

† See page 673.—ED.

The appropriation of those funds has been hitherto marked by ability, arising from local knowledge and good sound information, along with the practical experience of seamen. The Trinity House Board and that of the Engineers of Northern Lighthouses can look back on their works and point them out with pride and satisfaction as enduring monuments of wisdom and honorable enterprise, creditable in every way to their country. But a change has come o'er the scene, and it appears that a question is likely to arise whether that change will be productive of the same desirable effects. As far as measures have yet appeared there is little prospect of it, and that discussion which was not necessary in times gone by seems imperatively called for now. Not that it may avert steps from being taken in the wrong direction, but that seamen may know by whom and by what authority those steps are taken.

It is satisfactory to know that the very difficult work in course of construction on the Bishop Rock is proceeding as it should do, and that no checking influence has been exercised over that most important production of the Trinity House. But something of the kind appears to hang over another not very far from it. A projected building on those well known dangers called the Stones off St. Ives Bay is said to have been transferred to a site on Godrevy Head, a mile and a quarter *inside* those rocks. Until it is fairly up and really lighted we shall believe it to be chimerical. In a recent number we expressed our opinion that there must be some mistake about Godrevy Head being the site intended by the seamanlike Board of the Trinity House. And so it turns out to be, for we understand that this mischievous site is utterly repudiated by that Board,—*their* fair reputation at all events will not be stained by such an unseamanlike measure. To protect a vessel from the Longships Rocks, about three or four leagues further West, the Trinity House of former days knew better than to build a lighthouse on the Lands End. That Board wisely placed it on the danger itself, *where it should be.* The modern Board would serve the "Stones" in the same way,—but if they are checked in this and the "Stones" are not to have that advantage, then to other hands they wisely leave the honour of placing the lighthouse, intended for that dangerous shoal, on Godrevy Head, a mile and a quarter behind them, and along with it the responsibility of doing so.

Scotland, no doubt, has benefited from the recent transfer of the lighthouse funds to the control of Government, for the local resources of the country previously at the disposal of the Commissioners of the Northern Lights would not for many years have enabled them to establish those lights that must have gladdened the hearts of mariners in the gale of the 10th November. So far good. But it by no means follows that the same resources in the hands of the Commissioners would not have produced greater comparative benefit in the safe navigation of the high lands of the western coast than has resulted from the transfer of the chief direction and control of which they have been deprived.

So far as those important qualities, the application of true science and good mechanism, are necessary for the proper lighting of the coast, they are still displayed by the eminent Engineers, Messrs. Stevenson, long connected with the Northern Board; but the position for the lights, the colour and various aspects they are to assume is said to emanate principally from the Southern Board of Trade in conjunction with the Trinity House.

The constitution of the Trinity Board, composed as it is almost entirely of nautical men (those of the Northern Board being principally civilians), would lead to the supposition that they must be better qualified than these for the arrangement of matters so immediately connected with their profession. But the difference is this (and it is a fact of vital importance to the maritime interests of the North), that the Northern Commissioners are scattered over the seaboard of the country;—they become acquainted with men of sound practical knowledge, founded on long experience of the coast; and, either directly or indirectly, such information is constantly flowing towards them as enables them to form just conclusions as to what will best meet the requirements of the seaman. This is already sufficiently apparent in those judicious erections all round the coast, which will ever remain as monuments of the practical good sense and sound judgment displayed by the Northern Lighthouse Board while holding the sole jurisdiction.

The Southern Board, with that practical experience centred in themselves, make their periodical visits. But any single summer's cruise, from various causes, can never be expected to yield all the knowledge and afford all that experience which is necessary for the important functions with which they are invested. They are not in the way of obtaining useful *local* information, neither does it appear to be a principle with them even to seek it! The result is that the full benefit of that expenditure that was anticipated from the transfer of lighthouse funds has not been realised. This will appear evident, first, by the sites selected for lights; secondly, by the exhibition of them; and thirdly, by the intended sites for future lighthouses by this Board.

One of the first measures after the power was vested in the Southern Board, was to overrule the decision of the Northern Commissioners in the selection of a site for a lighthouse for the Sound of Islay, a decision confirmed by seamen thoroughly acquainted with the locality, some of whom had traversed it under every circumstance of weather for thirty years, both in sailing vessels and in steamers. It was also encouraged by the coinciding opinion as to the judicious selection of its site, of the Admiralty Surveyor of the coast. This proposed site was in the midst of the Sound, that would command both the entrances. But it was overruled by the Southern Board, and the site altered to the North entrance of the Sound, a change which, besides adding very materially to the expence of the erection without any corresponding benefit, rendered necessary the erection of another lighthouse for the Southern entrance, the distance between them being

ten miles! By this arrangement the same local benefit that the former would have secured was not afforded; neither was economy of money or space considered. But the new site was fixed upon, and the building of the Rudha Mhaill Lighthouse is in the course of erection.

In reference to the second place, the proposal for lighting it by the Southern Board will be best understood by a reference to the Admiralty Chart of that part of the coast. The passage between Islay and Oronsay is known to be a most dangerous one, but is seldom used, and only in extreme cases of distress. This channel is to be opened out by a full Bright light, without any attempt to indicate a danger or to afford the least guide to the unfortunate seaman tempted within the limits of its fearful breakers.

Between the South end of Oronsay and about half a mile East of Colonsay, a *Red* light is to be exhibited, and yet this is truly the only space where a seaman may safely navigate, for towards the N.E. point of Colonsay, he should be encouraged to go, this being bold, affording the best security from eddying tides, and the indirect influence of those of the Sound of Islay. From this limit of the Red light to the Jura shore, the light is again to be Bright, although from the set of the Correbhreain tides, and (on approaching Islay) from the want of any tide, no encouragement to approach should be held out.

Had the distinguishing Colours of this Light been reversed, with the extension of the Bright light about three miles N.E. of Colonsay, it would have been the best arrangement for its most injudicious site. But the evil does not end here, for the *two* lights *now necessary* for Islay Sound will, for obvious reasons regarding funds, prevent future erections on more eligible positions. What is this but bad management?

The third point for consideration is the proposal for lighting the Jura Sound, the most frequented passage of our increasing and already extensive Highland trade. This sound, though embracing many dangers, and with rapid tides, is preferred to the outer or Western one, chiefly from the smoother water, greater shelter, and its several good anchorages; but wrecks do occur in it, great risks are run there, and trade is impeded, from the want of Light to guide the anxious mariner through the long winter nights. The proposal of the Board is to erect a Lighthouse at the North extreme of this passage, on a small island called Pladda, a most judicious selection if in connection with other leading lights; but as Pladda is about *eleven miles above* the most intricate part of the navigation, or thirty-four miles from the Northern limit of the nearest proposed light, on Islay, its benefit will of course be limited, and it will be useless as a guide to shelter.

If from proper motives of economy it was found inexpedient to light the whole of the Sound at once, then the wisest course would be, to commence at the lower entrance first, and so conduct vessels at least into safety, leaving it to the option of the master to proceed or

not. The Lighthouse should therefore be erected, not upon Pladda but either upon Goat Island (Small Isles) or on Sgeir Maoile. There are many advantages attached to each, though on the whole perhaps they are mostly in favour of the latter position now that the light on M'Arthur Head is decided on. Had that not been found necessary, Goat Island, should have been adopted in connection with a most eligible position on Ruadh Squi, which is seventeen miles above it,—the Southern limit of a long reef of rocks, and the diverging point of rapid tides. If the Commissioners had retained their power, this arrangement would most probably have been carried out, as they are better acquainted with the wants of the trade, and more willing to satisfy them than appears by the present arrangement.

Let us now sketch out the proposition of Commander Bedford, the Marine Surveyor, in reference to this subject generally.

The First Light proposed by him for the outer navigation and boundary of the coast, is one upon Dubheartoch, (or St. Paul's Rock,) which is about twenty-five miles from Skerryvoir, and twenty-eight from the Rhynns of Islay, and would thus draw vessels off from the wild rocks of Oronsay and from the noted Torrens, extending several miles South of the Ross of Mull.

Secondly, a Light on the North end of Colonsay, sixteen miles from the last, would, in conjunction with that at Lessmore, distant twenty-six miles, completely open out the Frith of Lorn.

For the inner navigation commencing Southward, it would be very desirable to strengthen the light at Port Ellen, (Islay,) at present only a single reflector, as the bay affords good anchorage, but with many dangers in the neighbourhood,

For the Sound of Islay, the most perfect position for opening both entrances, indicating local dangers, and the best anchorage of that district for any class of vessel, would be upon the Islay shore near Port Askaig.

The Fourth Light, for the Sound of Jura, should be either upon Goat Island or Sgeir Maoile. The Fifth upon Ruadh Squi; and the Sixth upon Pladda. These would perfect the illumination, and be a lasting benefit to the many thousand seamen yearly navigating the West coast of Scotland.

NEW BOOKS.

MISSIONARY TRAVELS AND RESEARCHES IN SOUTH AFRICA, *including a Sketch of Sixteen Years' Residence in the Interior of Africa, &c., &c., by David Livingstone, LL.D., D.C.L., &c.* Murray, London, 1857.

This is a remarkable book: much more so than any that have issued from the press of late. It abounds in discovery, enterprise, and adventure of the most interesting kind, and if we are not mistaken will open out fields for

commercial adventure and more scientific discovery in the interior of the great African continent. Dr. Livingstone has shown the high road to its very centre, and not only that, but has explored it himself, and for his discoveries and devotion to that great cause has been heartily welcomed among us. He returns again shortly—or early in the approaching year, and with the good wishes of all who know that he may succeed in following up his unprecedented labours in the field of discovery which he has chosen to Christianize the natives. In contrast with the reptiles of St. Lucia, the account of which will be found in our present number, we take at hazard the following from his pages.

"Wherever mice abound serpents may be expected for the one preys on the other. A cat in a house is therefore a good preventive against these noxious reptiles. Occasionally, however, notwithstanding every precaution, they do find their way in; but even the most venomous sorts bite only when put into bodily fear themselves, or when trodden upon, or when the sexes come together. I once found a coil of serpent's skins made by a number of them twisting together in the manner described by the Druids of old. When in the country one feels nothing of that alarm and loathing which we may experience when sitting in a comfortable English room reading about them: yet they are nasty things, and we seem to have an instinctive feeling against them. In making the door for our Mabotsa house, I happened to leave a small hole at the corner, below. Early one morning a man came to call for some article I had promised. I at once went to the door, and, it being dark, trod on a serpent. The moment I felt the cold scaly skin twine round a part of my leg my latent instinct was roused, and I jumped up higher than I ever did before, or hope to do again, shaking the reptile off in a leap. I probably trod on it near the head, and so prevented it biting me, but did not stop to examine.

"Some of the serpents are particularly venomous. One was killed at Kolobeng of a dark brown, nearly black colour, 8 feet 3 inches long. This species *(picakhola)* is so copiously supplied with poison, that when a number of dogs attack it, the first bitten dies almost instantaneously, the second in about five minutes, the third in an hour or so, while the fourth may live several hours. In a cattle pen it produces great mischief in the same way. The one we killed at Kolobeng continued to distil clear poison from the fangs for hours after its head was cut off. This was probably that which passed by the name of the 'Spitting Serpent,' which is believed to be able to eject its poison into the eyes when the wind favours its forcible expiration. They all require water and come long distances to the Zouga and other rivers and pools in search of it. We have another dangerous serpent—the puff adder—and several vipers. One, named by the inhabitants 'Nogaputsane,' or 'serpent of a kid,' utters a cry by night exactly like the bleating of that animal. I heard one at a spot where no kid could possibly have been. It is supposed by natives to lure travellers to itself by this bleating. Several varieties, when alarmed, emit a peculiar odour, by which the people become aware of its presence in a house. We have also the cobra of several colours or varieties. When annoyed they raise their heads up about a foot from the ground, and flatten the neck in a threatening manner, darting out the tongue and retracting it with great velocity, while their fixed glassy eyes glare as if in anger. There are also various species of the genus *Deudrophis* as the *Bucephalus viridis*, or green tree climber. They climb trees in search of birds and eggs, and are soon discovered by all the birds in the neighbourhood collecting and sounding an alarm.* Their fangs are formed not so much for injecting poison

* "The *Bucephalus Capensis* is generally found upon trees, to which it resorts for the purpose of catching birds, on which it delights to feed. The

on external objects as for keeping in any animal or bird of which they have got hold. In the case of the *Dosypeltis inornatus* (Smith) the teeth are small, and favourable for the passage of their shelled eggs without breaking. The egg is taken in unbroken till it is within the gullet or about two inches behind the head. The gular teeth placed there break the shell without spilling the contents, as would be the case if the front teeth were large. The shell is then ejected. Others appear to be harmless and even edible. Of the latter sort is the large pithon, matse pallat, or tari. The largest specimens of this are about fifteen or twenty feet in length; they are perfectly harmless and live on small animals, chiefly the rodentia; occasionally the steinbuck and pallat fell victims, and are sucked into its comparatively small mouth in boa constrictor fashion. One we shot was 11 feet 10 inches long, and as thick as a man's leg. When shot through the spine, it was capable of lifting itself up about five feet high, and opened its mouth in a threatening manner, but the poor thing was more inclined to crawl away. The flesh is much relished by the Bakaladan and Bushmen: they carry away each his portion like logs of wood, over their shoulders.

"Some of the Bayeiye (people) we met at Sibituane's ford pretended to be unaffected by the bite of serpents, and showed the feat of lacerating their arms with the teeth of such as are unfurnished with the poison fangs. They also swallow the poison by way of gaining notoriety, but Dr. Andrew Smith put the sincerity of such persons to the test by offering them the fangs of a really poisonous variety, and found they shrank from the experiment."

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presence of a specimen in a tree is generally soon discovered by the birds of the neighbourhood, who collect around it and fly to and fro uttering the most piercing cries, until some one, more terror struck than the rest, actually scans its lips, and, almost without resistance, becomes a meal for its enemy. During such a proceeding the snake is generally observed with its head raised about ten or twelve inches above the branch, round which its body and tail are entwined, with its mouth open and its neck inflated, as if anxiously endeavouring to increase the terror which it would almost appear it was aware would sooner or later bring within its grasp some one of the feathered group.

"'Whatever may be said in ridicule of fascination, it is nevertheless true that birds, and even quadrupeds, are, under certain circumstances, unable to retire from the presence of certain of their enemies; and what is even more extraordinary, unable to resist the propensity to advance from a situation of actual safety into one of the most imminent danger. This I have often seen exemplified in the case of birds and snakes; and I have heard of instances equally curious, in which antelopes and other quadrupeds have been so bewildered by the sudden appearance of crocodiles and by the grimaces and contortions they practiced, as to be unable to fly, or even to move from the spot towards which they were approaching to seize them.'

"In addition to these interesting statements of the most able naturalist from whom I have taken this note, it may be added that fire exercises a fascinating effect on some kinds of toads. They may be seen rushing into it in the evenings without even starting back on feeling pain. Contact with the hot embers rather increases the energy with which they strive to gain the hottest parts, and they never cease their struggles for the centre, even when their juices are coagulating and their limbs stiffening in the roasting heat. Various insects also are thus fascinated; but the scorpions may be seen coming away from the fire in fierce disgust, and they are so irritated as to inflict at that time their most painful sting.

THE SEA OFFICER'S MANUAL, *being a Compendium of the Duties, &c., &c., in the Mercantile Navy,—By Capt. A. Parish.* Smith, Elder, & Co., 1857.

One of the first duties of the *Nautical* has always been to foster and encourage all attempts to raise the character of our mercantile marine, not only in endeavouring to show out its numerous abuses, but to raise the station of the officer, be that what it may. For it is with pride and satisfaction we say it to their credit as a class that the pages of this work have recorded their names as contributors of much of the most useful and interesting matter which it contains. There is scarcely a number of it which we might not adduce in support of this assertion, but, confining ourselves to the present, we will select the Notes on St. Lucia, with those which have preceded them, as proclaiming their author to unite the important qualifications of a good seaman and good officer with that of a gentleman. Such, we say, do honour to their profession. Such men raise "the tone of the mercantile marine," the professed object of Captain Parish's little book before us.

In the space of some few pages of a convenient form, Captain Parish has contrived to define the duties of the officers of different degrees in the mercantile marine with clearness and precision, and in that thorough seamanlike manner which can only proceed from experience,—for it is the glory of the maritime profession that experience alone will teach it. He has shown the difference between a smart and a common-place officer and what it is that makes the former, which the latter never can discover. He shows that learning how to obey is in fact learning how to command. Would that all our officers of the mercantile marine were of his stamp and of those to which we have alluded as an officer, a seaman, and a gentleman; then indeed we should no longer hear of those sad cases of tyranny which find a home in some of our merchant shipping, and are published to the world at our police courts. In all friendship and earnest desire for the real benefit of our merchant service and the respectability of that glorious branch of our maritime existence as a nation, we tell those officers to follow the advice of Captain Parish,—we say to those parents who have sons in that service growing to manhood, desire that they will tread in his steps,—we advise them to study every word he has written, to follow his excellent precepts, assuring them that if they do so, as they become hereafter good men and good officers, they will rejoice that they have done so, and will remember him always as their real friend and benefactor.

NARROW ESCAPE FROM DROWNING,—*and remarkable Treatment on the Marshall Hall Method.*

[As our present number contains directions for saving lives from wreck by the Board of Trade, we annex the following from a Southampton paper, the *Hants Advertiser.*]

On Saturday, the 10th instant, a young man, named William Kanes, aged eighteen, in the employ of Mrs. Cozens, fishmonger, met with an accident which, but for the scientific measures adopted on the occasion, must have terminated in death.

In the act of going on board the *Australasian*, Kanes missed his footing and fell overboard. An alarm was immediately given, when Bombardier Connor undressed himself, jumped into the water, and dived to the bottom on three distinct occasions to recover the poor fellow, but his praiseworthy efforts proved unavailing.

Richard Russell, Dock headman, was immediately despatched to procure the grappling-irons, and on his arrival alongside the vessel made two other unsuccessful attempts to seize the body.

Joseph Fryer, foreman Dock Company, subsequently made two hauls from stem to stern of the steamer, and his exertions were also of no avail. Failing in their efforts to discover the body, Russell was let down into the pilot's boat by means of a rope, and then made one haul with the irons from the stern to the stem of the ship, and was again unsuccessful. He lastly made a haul from stem to stern, and succeeded in finding the body.

Kanes was now lifted into the boat, a rope was lowered from the ship, to which his body was secured. He was then hauled up to the quay, and finally taken on board the steamer and deposited in the galley, where his clothes were removed in exchange for hot blankets. Medical assistance was sent for in every direction, and the first person who arrived was Mr. M'Cowan, the surgeon of the vessel. Then followed Mr. Thurston, surgeon of the *Orinoco*, who immediately suggested the propriety of having the body removed from the galley to the fresh air; and, lastly, Mr. Wiblin joined these gentlemen in carrying out a new mode of treatment in cases of suspended animation, and which, after five hours' uninterrupted perseverance, proved pre-eminently successful.

Space prevents us from going into the theoretical details of the practice adopted on the occasion. They were discovered and published by the greatest physiologist of this or the past century, Dr. Marshall Hall, who died in the month of August last. But as the plan is one novel in its character and application, and possesses overwhelming proofs of its truth and adaptation to practice, we cannot allow the opportunity to pass without giving to the public a brief summary of what is now generally known as the "Marshall Hall Method" of restoring asphyxiated persons.

The following rules are copied from Dr. Marshall Hall's new work, "On prone and postural respiration in drowning:"—

Rules to be adopted in every case.

1st Send with all speed for medical aid, articles of clothing, blankets, &c.; but

2ndly. Lose not a moment of time; treat the patient on the spot, in the open air, exposing the face and chest freely to the breeze (except in too cold weather); then—

To excite respiration.

3rdly. Place the patient gently and for a moment on the face, to allow any fluids to flow from the mouth;

4thly. Then raise the patient into the sitting posture, and endeavour to excite respiration—

1st. By irritating the nostrils by snuff, hartshorn, &c.

2nd. By irritating the fauces by a feather, &c.

3rd. By dashing hot and cold water alternately on the face and chest.

If these means fail—

To imitate respiration.

5thly. Replace the patient on his face, his wrist under his forehead, and—

1st. Turn the body gradually, but completely on the *side*, and a *little more*; and then again on the face alternately;

2nd. When replaced, apply pressure along the back ribs, and then remove it, and proceed as before.

3rd. Let these measures be repeated gently, deliberately, but efficiently and perseveringly, sixteen times in the minute only.

6thly. Continuing these measures, rub all the limbs upwards, making firm pressure, energetically.

7thly. Replace the wet clothes by such other covering, &c., as can be procured.

Omit *the warm bath until respiration be re-established.*

Such are the detailed instructions given by the learned authority abovementioned, and we beg to direct the particular attention of our readers for their adoption. The rules laid down by the Royal Humane Society are worse than useless; they are positively injurious, and, as such, are calculated to destroy every hope of resuscitation in cases of suspended animation. We are further reminded by Dr. Marshall Hall that the circulation is a *self*-poisoning, the respiration a *de*-poisoning process, and that these are the two principles by which we must be guided in the treatment of cases similar to the one above related.

The case of William Kanes illustrates how much may be effected by careful and persevering efforts at restoration. From the period of his falling into the water until that of his being taken to the open space on the deck of the *Australasian*, not less than from eight to ten minutes must have elapsed. All the bystanders agree that the body was completely under water at least *seven minutes*, and that he never rose once to the surface so as to enable him to breathe. Capt. Vincent, who was on the spot, and with most praiseworthy energy and attention personally superintended every stage of the proceedings until the arrival of the medical gentlemen, states most positively that the poor fellow was under water very little, if anything, short of ten minutes!

The first thing that was done was to remove the wet clothing, and surround the body with hot blankets. The patient was then taken from his supine position and laid *for one moment on his face*, the patient's wrist being carried upwards and placed under the forehead, in order to prevent the face from coming into contact with the bedding. Pressure was now made on the spine and posterior part of the thorax, with a view to induce *ex*-piration. The pressure was then removed, and its removal was followed by slight *in*-spiration after the lapse of *forty minutes*. The weight of the body was then removed from the thorax and abdomen, by gently turning it *on the side and a little beyond*, placing one hand under the shoulder and the other under the hip of the side moved: these movements being again and again performed about sixteen times in the minute. After the lapse of one hour and a quarter the medical gentlemen *imagined only* that there was a slight movement of the ribs; but as they continued their unceasing efforts this uncertainty was removed by their distinctly observing that the ribs moved; the carotid arteries pulsated, the nostrils expanded, the heart performed its ordinary functions,—in a word, that, after *five hours'* persevering efforts, the patient was enabled to perform the ordinary functions of respiration. He became sensible about half past four o'clock, and at half-past five he was removed to the Infirmary, where he received all the comforts that his case required.

We are happy to say that the man is doing very well indeed, and that in the course of a few days he will be enabled to return to his ordinary employment.

THE LEVIATHAN *of the Thames.*—The attempt to effect the launch of the *Great Eastern* or the *Leviathan*, as she is henceforth to be named, was interrupted by one of those unfortunate casualties which it must have been extremely difficult, under any circumstances to avoid. The weight of this enormous vessel is 12,000 tons, and this prodigious mass had to be lowered along ways between 200 and 300 feet in length, by means of the most delicately adjusted machinery. In addition to the enormous weight over which a

controlling power constant and equable had to be exercised the position of the launch was horizontal instead of longitudinal, which it is clear increased immensely the difficulty and hazard of the operation. It was obvious that to insure success the vessel must move down the ways perfectly parallel to her fixed position before starting. This constituted the real difficulty of the launch, and unfortunately it was not overcome. Shortly after the *Leviathan* commenced her descent it was observed that the ship was out of the parallel, and presently that her stern was considerably further down the ways than her stem. Immense efforts were made to bring her once more accurately athwart the ways, but in vain, and in the attempt to heave down her head a two inch cable snapped like a piece of twine. In that position her progress down the ways was of course arrested, and there the attempt to launch this great ship has for the present terminated. The sufficiency of the check-tackle and the rest of the apparatus for the descent to bear the necessary strain, has been fully tested. The failure so far is to be attributed to some mismanagement in its application, by which the ship's parallel position on the ways was allowed to shift.

[We find the foregoing in that valuable weekly journal *Mitchell's Maritime Register*, a paper "brimming full" of all kind of maritime information; but we suspect the real cause of the *Leviathan* not budging an inch to enter her future element, really arises from friction consequent on the close contact of the two iron surfaces composing her *cradle* and the *ways* it was to slide on, and hence her reluctance to go afloat. The resources of the engineer will be tried to overcome this difficulty, and we shall duly record her departure from her stubborn *ways!*]

ERRATA.

Page 2, line 4, *for* "So secure was the shelter in this bay," *read* "Although an open bay."

Page 10, line 13, *for* "180 miles" *read* "about 350 miles."

Page 62, line 10, *for* "thirty-eight miles" *read* "38°."

" " 26, *after* "ropes" *insert* "up."

" " 34, *for* "the cast" *read* "a cast."

Page 73, for the last two lines substitute as follows, "had reported on being banished from Johanna by Selina, who deposed his predecessor. The Queen of Mohilla had married an adventurer."

Page 75, line 1, Introduce the word "by" before "the name," and omit the words "being unknown."

Page 76, line 27, for "*chefs d'œuvres*" read "*chefs d'œuvre.*"

Page 197, line 22, *for* "Queen Radamah" *read* "Queen Ranavalomanjaka."

Page 197, line 44, *for* "Queen Radamah," *read* "the Queen."

Page 590, line 2, *for* "approaching that" *read* "approaching winter that."

Page 614, line 17 from foot, *for* "Geographical" *read* "Graphical."

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"So much has been written and said of the doings of this famed admiral, so much erudite learning has from time to time been brought to bear upon the elucidation of his discoveries, and so much argument brought forward to prove and disprove his landfall, and yet up to the publication of the present volume the great question, despite all the research and learning expended over it, remained as undecided and uncertain as ever. Washington Irving in his charming book, the 'Life of Columbus,' placed the landfall at Cat Island, and this he supported by charts and well written arguments; Señor Navarrete in his great and important work on the voyages of the Old Spanish Navigators, which he published in five large quarto volumes, and of which two are devoted solely to Columbus, and are prepared with scrupulous care and painstaking, placed it at Turk's Island; the great Baron Alexander Von Humboldt in his 'Critical Enquiry into the Geography of the New Continent,' after patient reasoning, astute enquiry and scientific argument, gave the weight of his authority to the opinion of Washington Irving, and Major Gibbs and others have given their award in favour of Navarrete, but it remained for Captain Becher in his present admimirable and laborious work to prove, which we own to us he most satisfactorily does, that the real landfall was what Señor Munoz had suggested, Watling Island, and this position he clearly proves to have been the correct one, and bears out his hypothesis with the weightiest reasoning and the most careful and diligent research. Too much praise cannot be given to Captain Becher for the admirable manner in which he has carried out his laborious undertaking, and for the clear and powerful arguments, and the many and important proofs which he has brought to bear on his subject,—arguments and proofs which now, we fancy, must settle the important question of the locality of the spot where Columbus first set his foot in the New World. In the volume before us we perceive that the author has most wisely placed the notes of the journal of Columbus in his first voyage across the Atlantic ocean in 1492, in the form of the journals kept on board our own government ships at the present day, thus rendering it not only intelligent to all, but placing the important information with which it abounds, more easy of reference and of comparison with other documents. The journal is then continued with a running commentary, page by page, containing most carefully written notes on the various matters which are contained in it. The whole work is an interesting narrative of the life of the great Columbus; of his various voyages; and of the discoveries which he made. It is told in a peculiarly pleasing manner, is replete with information of the highest importance, and is so important in its matter as to demand a place in every public, and in every good private, library. The volume is illustrated with a beautifully engraved chart of the track of Columbus from the landfall to Cuba, most carefully prepared from the highest and most authentic hydrographical authorities, and printed with the utmost care and precision, in red and black. It is also further illustrated by a tinted lithographic view of San Sebastian Bay, Gomera. We most strongly recommend the book to our

readers, assuring them that it is one of the most important and carefully prepared ones which have lately issued from the press, and is one from which they cannot fail to derive much sound and useful information."—*Derby Telegraph, 1st Nov.*, 1856.

"This is one of the most important and interesting volumes that has come under our notice for some time. It reopens and settles a problem which has remained in doubt and obscurity for several centuries. The author is well known in Maritime circles for his labours and researches in the hydrographic department of the Admiralty. Reviewing carefully Navarrete's "Collections of Voyages," Captain Becher differs from Washington Irving, Baron Humboldt, and others, in the first land made by Columbus. Senor Navarrete and Mr. Gibbs, a resident of Turks Island, support Turks Island; Washington Irving assumes Cat Island to be the landfall, and is supported by Humboldt; but Capt. Becher, upon what, after very careful consideration, seems reliable evidence, believes it to be Watling Island. The three separate tracks are laid down, and Capt. Becher supports his theory by unmistakeable evidence from the Journal of Columbus, with a running commentary thereon. The patience and perseverance of tracking the voyage, comparing and reconciling conflicting accounts, and applying the great Navigator's names to existing localities, must have been great. Even at the present day, we are much in arrears in our West Indian surveys, for Capt. Becher remarks:—'We are yet to see a good chart of both these islands, (Cuba and Espanola,) with their outlying reefs and it is somewhat remarkable that of the shoal on which Columbus lost his ship we know as little now as we did a century ago; and of the island of Tortuga, alluded to by him, even the shores of it are yet unknown.' The work is prefaced by a translation of the Baron Bonnefoux's 'History of the Life of Columbus,' previous to his first voyage, which is most interesting. Indeed, the whole volume has a standard authority from the care with which the progress of Columbus has been followed from his landfall to Cuba; and the reception which has been given to Capt. Becher's theory, by the Royal Geographical Society, proves how highly his industrious labours in this interesting field of inquiry and research, are appreciated.—*Shipping Gazette.*

"Capt. Becher's recently published volume entitled—The Landfall of Columbus on his first voyage to America, is one of those works which must find its way into all libraries, whether public or private, inasmuch as based on fact and records of an indisputable character. the circumstances relative to the four voyages of this celebrated man, are here fully developed, and the spot on which Columbus first set foot in the New World, is here satisfactorily defined and established. Notwithstanding the hitherto unsuccessful efforts of the most distinguished writers and Nautical Commanders or Historians to determine or solve a question that has been deemed of the highest importance, and embarrassed by difficulties in the solution of no ordinary complicity, as neither Watling Island, the Guanahani of Columbus, nor the Crooked Island Group, his 'Fragrant Isles,' has been surveyed on the liberal scale of Long Island, off the south-west end of which he anchored, and after naming it, simply adds a passing notice in two or three words.

"The notes of the Journal of Columbus in his first voyage across the Atlantic Ocean in 1492, are here digested in the more modern form of the Journals kept on board Government ships, by which at a glance are shown the courses and distances run by him.

"The arguments of Washington Irving in favour of Cat Island; and those of Baron Humboldt, are by Capt. Becher most successfully analysed, the several courses are traced on an accompanying map, and the vexatious point in dispute may now be considered as definitively settled."—*Willis's Current Notes.*

"We are bound to say that Captain Becher has made out an admirable case. The Journal of Columbus, of which he has given us an abstract and which he accompanies with a running commentary, is a most delightful document. It has all that delicious freshness which we find in the voyages in Hackluyt's collection, at the same time that it testifies to the piety and nobleness of mind of the great discoverer. As far as we are able to judge, Captain Becher has settled an important moot point in the history of geographical discovery; but even if he had not done this we should have been sorry if he had not published his work. It contains inestimable materials for future investigators, and has an interest independent of its scientific value."

Daily News, 23rd August, 1856.

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I.—USHENISH—SOUTH UIST.

Usenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness.

The Light will be a Dioptric First-Class FIXED RED LIGHT, and will be exhibited from a tower of masonry erected on the headland. The Light will be about 176 Feet above High Water of Spring Tides, and will be seen in clear weather at the distance of about Eighteen Nautic Miles, allowing Ten Feet for the height of the eye, and at lesser distances according to the state of the atmosphere.

II.—RONA.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye.

The Light will be a Catadioptric Second-Class Holophotal FLASHING WHITE LIGHT, showing a Flash EVERY TWELVE SECONDS. It will be exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above High Water of Spring Tides, and will be seen in clear weather at the distance of about twenty nautic miles, allowing Ten Feet for the height of the eye, and at lesser distances according to the state of the atmosphere.

III.—KYLEAKIN.

Kyleakin Lighthouse is situated on a point of rock which covers at High Water Spring Tides, and projects from the west end of Eilan Dool, or Gillean island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about Fifty-three yards within the High Water Mark of Spring Tides, and is connected with the Island by a bridge of Five Spans.

The Light will be an Azimuthal Condensing Light, and will show a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island.

From thence it will show a FIXED RED LIGHT, extending eastwards along the Shore of Skye to the south of the fairway of Loch Alsh. It will also show a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross.

To the north of the fairway of Loch Alsh, the Light will not be shown.

It will be exhibited from a tower of masonry about 53 Feet above High

Water of Spring Tides, and will be seen in clear weather at the distance of about Eleven Nautic Miles, allowing Ten Feet for the height of the eye, and at lesser distances according to the state of the atmosphere.

IV.—ISLE ORONSAY.

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V.—SOUND OF MULL.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the South Shore of the Sound of Mull, Argyllshire, about One Mile Northwards from Tobermory. The tower is about Fifty Yards within the High Water Mark of Spring Tides, and is connected with the shore by a bridge of Two Spans.

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(Signed) PHILIP HAST, Lieut. R.N. Commander.

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